## **Appendix D**

Part 4

## Responsiveness Summary for the Operable Units Two and Three Bennett's Dump Superfund Site Bloomington, Indiana

**Comment 1:** What types of uncertainties are involved with the collected Bennett's Dump data and human health?

**Response:** To calculate the risk to human health, a large quantity of site specific data was used to calculate the risk levels. An uncertainty analysis (Section 5.5) is part of the Human Health Risk Assessment and describes in detail the uncertainty in the human health risk assessment.

**Comment 2:** Is the intake from eating fish where humans get the highest concentration of PCBs from Bennett's Dump?

**EPA Response:** Yes, fish would be considered the most likely exposure point that would produce the highest risk from the Bennett's Dump site.

**Comment 3:** What are the preliminary signs in ones body that one has ingested PCBs?

**Response:** In most cases, you would not know you were exposed to PCBs unless they were at extremely high concentrations. The purpose of this cleanup is to reduce the risks associated with PCB exposure as described in the human health risk assessment.

**Comment 4:** Where did the calculations from Table 3 on Page 56 originate from?

**Response:** Please see Appendix B for more information on how the values were calculated.

**Comment 5:** How does the calculations box relate to the table in page 87?

**Response:** Page 87 does not exist in the document.

**Comment 6:** What types of Ecosystem Structure is around Bennett's Dump and how does this play a roll in the spread of PCBs?

**Response:** Stout's Creek is the most important ecosystem involved in the spread of PCBs from Bennett's Dump (see Sections 2.0, 2.1.1, and 2.2 for details). The terrestrial ecosystem is not a significant route for PCB spread because PCB-contaminated materials and soils near the surface were either excavated and disposed off site, or consolidated and a soil cover placed over the site in remedial actions implemented in 1987 and 1999.

**Comment 7:** What are the non-cancerous effects involved with the Bennett's Dump site?

**Response:** Possible non-cancerous affects associated with PCB exposure are described on Page 17, Section 4.1 of the human health risk assessment.

**Comment 8:** How does 252-PCBs compare to the other PCB site around Bloomington, Indiana. Are 252-PCBs one of the hardest PCB types to clean up?

**Response:** EPA is unsure on what the commenter is referring to but assumes it may refer to Aroclor mixtures. In any case, the remediation techniques for PCBs are equally effective for different Aroclors

**Comment 9:** What is the most effective and quickest way to clean up PCBs if money was not an issue?

**Response:** Many different remediation techniques may be used to address PCB contamination with some more expensive than others. It depends on the media contaminated and the levels of contamination.

**Comment 10:** Is it possible that the PCBs could become airborne while the clean up is taking place?

**Response:** Yes, PCBs can volatilize into the air and this happened during excavation activities at the Lemon Lane Landfill. Air monitoring during the Bennett's Dump soil cleanup did not produce unacceptable levels of PCBs. During the implementation of the passive quarry drains and interceptor trench, the EPA expects the volatilization of PCBs based upon the levels remaining at the site to be minimal.

**Comment 11:** Are the doses of PCBs seen in birds similar to the ones seen in the affected fish?

**Response:** PCB doses were not calculated for fish because effects in fish were not selected as an assessment endpoint (Section 2.3). PCB doses to kingfisher are modeled from the PCB concentrations measured in fish, and those measured or modeled in crayfish. Since fish comprise 80 % of the kingfisher diet, the PCB dose to kingfisher closely tracks the PCB concentrations in fish.

**Comment 12:** Are the affects of PCBs similar to the affects of DDT when dealing with fish and birds?

**Response:** Both chemicals can produce reproductive affects in birds, but they produce them differently.

**Comment 13:** At the Bennett's dump site which organism is the most sensitive to PCBs?

**Response:** For Bennett's Dump and the other Bloomington sites, we evaluated both mink and kingfisher since these species represent fish eating birds and fish eating mammals. Since the risk would be the greatest to these species because the majority of their diet is

fish, EPA is of the opinion that these two species represent a conservative analysis. Therefore, if mink and kingfisher are protected, other species would be protected.

**Comment 14:** How long did it take to create this study of affected organisms?

**Response:** The ecological and human health risk assessments took approximately two years to complete.

**Comment 15:** Because site 1 is so over contaminated by PCBs could groundwater and runoff potentially contaminate the other 2 sites to the levels of site 1?

**Response:** EPA assumes the commenter is referring to the two satellite areas. Based upon the residual levels at the Bennett's Dump main site, it is very unlikely that the other two sites would become contaminated since runoff from the main site travels to Stout's Creek and runoff from the site is not a problem since the source control was completed in 1999.

Comment 16: Why were reproductive endpoints chosen for this study? Page D-1

**Response:** Reproductive endpoints were used to evaluate the risk to piscivorous mammals and birds that inhabit or potentially inhabit Stout's Creek.

**Comment 17:** What is the toxicity reference value and how does it pertain to this table? Page D-14

**Response:** Toxicity reference values (TRV) represent a threshold effect-level of a chemical. The TRV's listed in the table were used to calculate the Percent Allowable Consumption.

**Comment 18:** What was the most surprising finding after finishing this study?

**Response:** EPA did not find the results of the Ecological Risk Assessment surprising considering the continuing release of PCBs into Stout's Creek.

**Comment 19:** The end of section 3.2.1 says, "inhalation of PCBs in air above or adjacent to Stout's Creek is expected to be a minor contributor to total potential exposure and is not evaluated in this HHRA." Why was it not evaluated?

**Response:** The volatilization of PCBs into the air is minor compared to the other pathways. Evaluating the PCB levels released from the water shows low parts per billion PCBs and even if most all of the PCBs volatized into the air, the low levels would not produce an unacceptable inhalation risk.

**Comment 20:** Section 3.2.2 does not list inhalation as an exposure pathway. Why not?

Response: See Response to Comment 19.

**Comment 21:** Section 3.2.3 discusses the recreational habits and the potential growth of recreationalists around the area. My concern is that if this area is potentially harmful to those people; why are there not signs warning people to stay off the site.

**Response:** The site is currently on private property and is fenced. Based the land use surrounding the property, fencing and signs will be required.

**Comment 22:** In the table "Surface Water Total PCB Concentration Measured at Stout's Creek Downstream Location November 1999 through June 2004" the maximum concentration goes down after 2002 even though the location was changed to "eliminate the dilution". Why would the concentration go down if some dilution was eliminated?

**Response:** EPA moved the monitoring station in Stout's Creek to upgradient of the West Branch of Stout's Creek to eliminate additional water diluting the sample. The most likely reason the concentration went down is that less PCBs are being released into Stout's Creek and possibly greater flow in Stout's Creek during the sampling event diluted the contamination level.

**Comment 23:** Section 4.1 says the rats were fed a "basal diet for 5 months", what is a basal diet?

**Response:** A basal diet is sometimes referred to as a control diet and consists of standard animal chow with no contaminant (in this case polychlorinated biphenyl) added.

**Comment 24:** Section 4.1 also says that female rats had a "91% incidents of liver tumors" and males had only a "4% incidents of tumors". Why such a large difference between males and females?

**Response:** The information presented in the cited portion of the text was summarized from the U.S. Environmental Protection Agency's (EPA) Integrated Risk Information System (IRIS). As presented in IRIS, information regarding the tumor incidence in female and male rats exposed to polychlorinated biphenyls (Aroclor 1260) in the diet was provided. However, the possible basis for the differential response between female and male rats was not discussed.

**Comment 25:** In section 4.3.1 it says that chronic RfDs refer to periods of over 7 years, but the study uses a 30 year exposure. Why was 30 years used instead of 7?

**Response:** As discussed in the text, chronic RfDs are used "to evaluate exposures occurring over periods of more than 7 years." The human health risk assessment (HHRA) evaluated two groups of receptors: youth recreationalists (7 to 18 years of age) and adult recreationalists. As discussed in the HHRA (see Table 1), these two receptor groups were assumed to be exposed to polychlorinated biphenyls in various media (surface water, sediment, and fish tissue) for 12 and 30 years, respectively. These receptor-specific periods of time (referred to as the exposure duration) reflect upper-

bound estimates of the time period over which these receptors may be exposed. The 12 year exposure duration for youth recreationalists represents the age range (7 to 18 years) during which (for the purposes of the HHRA) individual receptors are considered to be "youths." The 30 year exposure duration for adult recreationalists represents the upper-bound estimate of the length of time an individual may live in the same residence. The choice of exposure duration is receptor-specific and is entirely independent of the period of time defined as chronic exposure.

**Comment 26:** I do not understand what is happening in section 5.3. The above sections indicate that all hazard levels are within the EPA's acceptable risk guidelines, but section 5.3 indicate that levels are way above acceptable Indiana limits for AWQC.

**Response:** The Ecological and Human Health Risk Assessments do not indicate that all hazard levels are within EPA's acceptable risk guidelines. Please see Section 5.2.1.2 and Appendix C for further information or the Bennett's Dump Proposed Plan for a summary. EPA compared the risk calculated to the Ambient Water Quality Criteria as another approach in evaluating risk. In addition, the EPA also compared the risk to fish advisory action levels.

**Comment 27:** Overall I found this Risk Assessment to be fairly easy to understand for someone who has little experience in this field (myself included). However, I am a little confused with the risks associated with living at or very near to the site.

**Response:** The residual PCB levels in soil after the 1999 cleanup would not allow for residential development. The current risk would be to people who frequently ingested fish from Stout's Creek at Acuff Road (3 miles from site) and W. Maple Grove Road (5 miles from site) and borderline risks associated with dermal (skin) contact with water near the site. The Proposed Plan contains a useful summary on site risks.

**Comment 28:** Sections 1 through 2 were very clear to me. It is evident that PCBs have an adverse effect on piscivorous animals. My one question is, do mink and kingfishers live around the Bennett's Dump site? If not, what other species live in the area that would be similarly affected by PCBs?

**Response:** Kingfisher and mink are in the Bloomington area and the habitat is suitable for both species. EPA uses these two species because they feed on fish and are exposed to higher levels of PCBs. By determining the risk to these two species, we can be assured other mammals and birds would be protected since they do not consume fish.

**Comment 29:** Many times the risk assessment mentions that contaminated soil issues have been addressed at the site. If plans were to go through to develop the site, would soil concentrations of PCBs become an issue?

**Response:** Yes, the residual PCB contamination levels in soil are suitable for industrial or commercial development.

**Comment 30:** Section 3.3 shows that the white sucker had the highest level of PCBs at every site location. What factors lead to this?

**Response:** Suckers are a type of fish that feeds on the bottom of the creek bed. Even though the PCB concentrations in sediment in Stout's Creek are under 1 ppm, suckers would be exposed to more PCBs than other types of fish in the creek.

**Comment 31:** Section 3.4.2 again says that crayfish were only sampled at location 1, but not 2 or 3. Why were samples not collected at stations 2 or 3?

**Response:** Crayfish were only sampled at location 1 since it is the station nearest to the site. Cost and the ability to model the concentrations at other locations factored into the decision making.

**Comment 32:** In the first paragraph of section 4.3, why is maximum estimated concentrations used for mink and daily doses used for kingfishers? Why not use the same measure for both?

Response: Exposure to mink is evaluated on the basis of dietary concentration because the concentration of PCBs in mink diets along Stout's Creek may be directly compared with the concentrations used in feeding studies performed with mink. In contrast, no PCB feeding studies have been performed with kingfisher. This means that the PCB exposures to kingfisher must be compared to PCB studies performed with different species of birds. Food consumption rates vary with body size. Therefore, direct comparison of dietary PCB concentrations will be misleading if the bird species used in a laboratory toxicity test ingests significantly more or significantly less food per day compared to kingfisher. To avoid this problem, exposure to kingfisher is based on bodyweight-normalized dose (µg PCBs/kg bodyweight/day), which is compared to the bodyweight-normalized dose of the bird species used in PCB toxicity tests. The same procedure could have been followed for mink, but is unnecessary because the toxicity data are available for the same species (mink).

Comment 33: I consider myself to have very little experience in the risk assessment field. Overall I found this Risk Assessment easy to understand. Procedures, results and reasoning were very clearly defined.

**Response:** No response required.

**Comment 34:** Based on this study, would you recommend further clean up activities at and around the Bennett's Dump site, be conducted?

**Response:** EPA has recommended an approach in the Proposed Plan. The ROD Amendment describes the remedy to be implemented at Bennett's Dump.

**Comment 35:** Human Health Risk Assessment Part, on page 9, there is an explanation of considerations in fish consumption calculation. From the summary of the risk from fish

consumption, it can be assumed that fish fillets, not whole fish, have been tested. Since some people eat whole fish including heads and bones, it would be more appropriate, and perhaps more practical and conservative, to test whole fish especially smaller fish that have softer, thus more edible, bones.

**Response:** The EPA and CBS did sample both whole fish and fillets. A conversion factor to convert whole fish into fillets for the risk assessment was used. Some people do eat whole fish but are not as prevalent as individuals who eat fillets.

**Comment 36:** Ecological Risk Assessment Part (pp.9-11), I think this part is described in great detail and thus very informative. However, it is quite difficult to follow all of the numbers in long sentences, so it would be helpful to use a table for readers to grasp the results more easily.

**Response:** A large number of tables were placed into the document to make it easier to grasp the results. Please see Appendix B.

Comment 37: Overall I really thought the document was put together very well and established the history of the site quite well. It was very accessible and I particularly liked the identification of the types of fish tested in the "Fish Tissue" segment of the document. I believe it spoke well to the public as these are commonly fished for by local anglers.

**Response:** No response required.

**Comment 38:** The PCB overview was really well worded and easy to follow given a little chemistry background.

**Response:** No response required.

Comment 39: In the fish tissue section of the Human report the creek chub was not mentioned as part of the HHRA study. However, in the ecological report on page 27 mentioned the creek chub as part of the sampling. I was unclear after having read the human report, where you refer to the HHRA study on page 4, if this was the same study or not because the citation was vague on page 27 of the ecological report in my opinion. If the two were read one after another, which is what I am assuming will happen, this could pose some confusion.

**Response:** Creek chub are not evaluated in the human health risk assessment because they usually very small and undesirable to eat. Fish sampling events produce data which are used by both risk assessments.

**Comment 40:** I felt the mink was a very strong target organism The mink's diet primarily being of fish and given the lipophillic nature of PCB's made it a prime example. I also like the mink because of the amounts of data that was able to be obtained from recent studies from Sweden. Many of the citations were from 2000 or even more recent which helps to strengthen the assessment and its accuracy.

**Response:** No response required.

Comment 41: Overall, I liked this assessment in many ways. Its strengths were definitely in the fact that many different diagrams and figures were presented throughout the document and not just at the end. I think this format for citing figures may be suitable for the human report as well. I would also like to see the same PCB overview placed in the human risk assessment. I really learned a lot from this assessment and nothing really stood out as needing a change in my opinion.

**Response:** No response required.

**Comment 42:** I think your introduction does a nice job of stating the purpose of the report. It is made very clear what the intentions are. This is especially beneficial to someone who has no idea what a risk assessment is in the first place.

**Response:** No response required.

**Comment 43:** I feel that the site history section was adequate and definitely gave good background as far as what problems are present at the site and what has and can be done to help alleviate the situation.

**Response:** No response required.

Comment 44: I was very impressed with the section on exposure. All of the different pathways and media by which someone could get PCBs in their body are mentioned. Also, you distinguish between youth and adults and which shows that you weren't just generalizing about people as a whole. However, it would have been nice to maybe have a category which looked at pregnant women as a different group than adult recreationalists. It seems to me that there is more risk for that target organism.

**Response:** EPA does acknowledge that pregnant women and the fetus would be at higher risk but we can only evaluate the risk qualitatively and not quantitatively.

Comment 45: I thought it was nice that the general equation for calculating risk was shown, along with what each variable stood for. However, none of the results can be found during the exposure section. Someone has to look all the way at the end of the report to see what numbers were plugged in. I think it would easier to follow if you can see the tables and charts in the same place that they are actually discussed.

**Response:** Thank you for your comment and this will be considered in future documents.

**Comment 46:** I think the Toxicity Assessment section was very well done. All the major effects that can be attributed to PCB exposure are mentioned which is a very good thing. The difference between cancer and non-cancer effects was important. Also, I liked the fact that went over how PCBs can be broken up into different groups and the different

exposure pathways which are related to each group. You went in detail about the RfD, as well as how the NOAEL and LOAEL are to be used, which is obviously very vital.

**Response:** No response required.

Comment 47: In addition, I think it was good that uncertainty factors were covered. These are very important, as they can truly affect the data. If too few are used, the problem can be underestimated, while if too many are used, the problem can be grossly overestimated.

**Response:** No response required.

Comment 48: In the risk characterization section, the levels at which one should be concerned for both cancer and non-cancer are given. This is extremely important, for even if someone understood all the equations, without the knowing the dangerous levels, it would be useless.

**Response:** No response required.

**Comment 49:** I found the summary and conclusions section a bit confusing. At one time it says that total risks are within the EPA's acceptable range. However, a few sentences later it appears to be contradicted. I wish this section was just a little bit more straight forward so that the layman would be able to know whether or not a problem actually exists or not.

**Response:** The risk assessment process in general is complicated and many different approaches were used to evaluate risk. EPA's risk range and point of departure should have been explained further. EPA usually likes to use a 1 in 1,000,000 excess cancer risk as a point of departure but within Superfund, risk levels of 1 in 10,000 excess cancer risk are acceptable in some circumstances. EPA is of the opinion that if you read the entire document carefully, including the tables, a complete picture of the risk assessment is given.

**Comment 50:** I like the fact that there is a detailed description of the site history which is placed in the beginning of the risk assessment. A site location map is included with this which I found to be beneficial.

**Response:** No response required.

**Comment 51:** I thought it was important that the major components which go into an ecological risk assessment were laid out. This gave me an expectation of what I should be learning from this report. There were differences between this and the human health risk assessment so I was glad to know that from the start.

**Response:** No response required.

Comment 52: It was important to note early on what this risk assessment would be focusing on. You point out that the focus was to be on PCB-related risks. These were intended to include piscivorous birds and mammals. Also, it was noted that the risk assessment would focus on the aquatic habitat. Again, I'm glad the specifics were provided in a clear way.

**Response:** No response required.

Comment 53: I especially liked the section which discussed different effects which have occurred from PCB exposure to a number of different animals. A good deal of time was devoted to talking about the reproductive effects which can take place. I think it's important to mention these things because it lets people know that there is a serious problem and that it is being taken very seriously.

**Response:** No response required.

**Comment 54:** I think the conceptual site model, in addition to the sections dealing with endpoints, did a good job explaining the process by which PCBs moved around the site. It was nice having the maps to really visualize the process.

**Response:** No response required.

Comment 55: In the exposure assessment it was clear that the organisms you would be focusing on were the mink and the kingfisher. You provided a good explanation of how you determined the PCB concentration found in each of their diets. You make note that 21% of the mink's diet comes from terrestrial creatures which weren't accounted for in the report. You go on to say that this may cause the mink exposure to be underestimated. I was impressed that this was included. There was no attempt to try and shy away from this so I was glad it was mentioned.

**Response:** No response required.

**Comment 56:** I liked the charts that were included in the exposure assessment. It was made clear what the PCB concentration was in both extreme and average terms for the different creatures which the mink and kingfisher were known to consume. Then, the total concentration of PCBs which each consumed was shown.

**Response:** No response required.

Comment 57: The section dealing with toxicity was done in great detail. Although the information appears to be accurate, it was difficult trying to take it all in. At times it was overwhelming. I thought your summary section did a nice job of wrapping everything up. It was important to make note that remediation efforts had taken place, but that nonetheless the mink and kingfisher were still at risk.

**Response:** No response required.

**Comment 58:** Were all the goals from 1998 met for this report and if so how specifically were they met?

**Response:** The 1998 excavation did not eliminate the groundwater problem at the site as was hoped. The discovery of buried quarries onsite where disposal activities took place did influence the remediation. The cleanup of the source in 1998 will allow for the redevelopment of the site to industrial/commercial standards.

**Comment 59:** How accurate can you expect the fish data to be if it wasn't collected in person.

**Response:** The fish data is accurate based on a number of factors. Fish sampling was completed in Stout's Creek using an approved Sampling and Analysis Plan and Quality Assurance Project Plan. EPA in most cases has oversight of CBS's contractor during the fish sampling event. In addition, chain of custody forms are used to ensure that samples are not tampered with during transportation to the laboratory.

**Comment 60:** Potential receptors is a good section.

**Response:** No response required.

**Comment 61:** Splitting up Recreationalist is a good way of to distinguish different affects among potential persons.

**Response:** No response required.

**Comment 62:** All the Data and the specific map are very good. This helps the reader truly understand where and how things are working.

**Response:** No response required.

**Comment 63:** The uncertainty factors are very thorough.

**Response:** No response required.

**Comment 64:** The site map at the beginning with topography is very fitting and good.

**Response:** No response required.

**Comment 65:** When soil is removed where is it taken or how is it disposed of? (pg. 12)

**Response:** It depends on the situation. At Bennett's Dump, the PCB contaminated soil was excavated and transported to a landfill permitted in accept PCB contaminated waste.

**Comment 66:** I am a very visual person, so I like the pictures of how PCBs look a lot like Dioxin. This was helpful to keep me interested. (pg. 12-14)

**Response:** No response required.

**Comment 67:** Pg. 16's diagram is very helpful and informative.

**Response:** No response required.

**Comment 68:** Why are seals mentioned? Do the migrating water birds pass PCBs to them or is it just to explain reproductive problems? (19)

**Response:** Seals are mentioned since PCBs do produce reproductive effects in them.

**Comment 69:** What is the mink population like in Bennett's Dump? (pg. 23)

**Response:** The mink population is unknown, but the habitat is suitable for mink. We did find a dead mink near another Bloomington area site. The main reason we use mink as an organism to evaluate is that health data exists on PCB exposure to mink and it is a fish eating mammal. Therefore, if we protect mink, we can assume that other mammals would also be protected.

Comment 70: LENGTH OF REMEDIATION- My first is concern is that although the site was discovered in 1985 final excavation of the site wasn't ordered to be completed until 2000. I admire the initial actions and progress taken in 1984 and 1985 by placing the site on the NPL, but am concerned that the site wasn't totally excavated until relatively recently. I think that prompt action is necessary to prevent damage to human health and ecosystems. Although I understand that the process of negotiating with the liable entity is a lengthy, drawn out process, I still think that human health and environmental safety be the priority.

**Response:** EPA agrees with the commenter that the length of time between the site being discovered and excavation was a long period of time. The Consent Decree between the parties has limited EPA's ability to address this site in more timely fashion. The interim action did help to address the immediate risk but the effort to implement the original incinerator remedy and the eventual evaluation of other remedies under the 1994 Operating Principles took a long period of time due to the disagreements between the governmental parties and CBS Corporation.

Comment 71: EXPOSURE AREAS- A second concern is choice to limit the exposure assessment to the Stout Creek area, while only "indirectly" considering the risks associated with the five other creeks associated with the Bennett's Dump area. These areas are also used in similar ways to the Stout Creek and thus should be included in the risk assessment.

**Response:** The purpose of both the Human Health and Ecological Risk Assessment is to evaluate the risk associated with the Bennett's Dump site and to determine if cleanup activities are required. We did evaluate downstream of the Bennett's Dump site and saw minimal risk at the W. Maple Grove location. To evaluate streams or creeks indirectly connected to Bennett's Dump would be a good research project, it goes beyond the scope of our objective. EPA is of the opinion that unacceptable risk is present in Stout's Creek and additional remedial measures are required.

**Comment 72:** EXPOSURE SCENARIOS- I think that both child and adult recreationalists are appropriate target organisms, but I think that this group should be expanded to include pregnant women. The fetus is a particularly sensitive subpopulation and shouldn't be ignored.

**Response:** It is very difficult to evaluate pregnant women in a risk assessment, but please be aware that reproductive affects are taken into consideration in the calculating of non-cancer risks.

Comment 73: VISUALS- I think that all the visuals for this risk assessment were particularly effective. Not only were they complementary to the text, they were also nice looking documents.

**Response:** No response required.

**Comment 74:** BIOACCUMULATION- I found the ecological risk assessment to be more thorough than the assessment done for human health. My only worry is that associated with PCBs bioaccumulation throughout the food chain. A risk assessment should be done for other top level consumers- deer/rabbits/other animals who consume plants contaminated with PCBs and other species of birds that eat the fish in Stout Creek.

**Response:** Plants do not uptake PCBs in large quantities compared to fish. Our focus was to be conservative by using mink. It would be a good research project to evaluate other top level consumers but would have provided a less conservative approach. The kingfisher was used since its feeding range is somewhat limited, For example, the Great Blue Heron could have been evaluated but since its feeding range is large, the risk would be much less than a kingfisher.

**Comment 75:** MOVEMENT OF TARGET ORGANISMS- I am also concerned with the movement of fish and crayfish throughout the creeks located near Bennett's Dump, since I don't think the other creeks were not considered in the risk assessment.

**Response:** Stout's Creek was evaluated since it is directly connected to the Bennett's Dump site. Fish and crayfish do move but not in distances which would make EPA be concerned that other creeks are being affected. Levels in fish decrease as you move from Bennett's Dump site.

**Comment 76:** Pg. 10 last paragraph. Since sediment is a complete exposure pathway for aquatic receptors shouldn't it be covered under FERA? If not then why?

**Response:** EPA focused its efforts on evaluating the risk through the uptake of fish, which are exposed to contaminated sediment. Evaluating the PCB levels in sediment in Stout's Creek shows that PCB contamination has not impacted sediment. No samples were above 1 ppm PCBs in Stout's Creek.

**Comment 77:** Pg. 15 3rd paragraph. It states that the kingfisher will be compared to other avian species. This will not make for precise measurements because many other avian birds have different diets.

**Response:** A kingfisher is used as a receptor since a large portion of its diet is made up of fish. To be conservative, we evaluate the risk to kingfisher, therefore, if kingfisher is protected, then other avian species will be protected.

**Comment 78:** Pg. 17 In comparing the information on the mink located on the Michigan Rivers and mink near Stout Creek the information might not be accurate. A mink that lives near a large river might have a different diet than a mink living near a small stream.

**Response:** EPA could have tried to complete a field study at the site in which we could have tried to capture mink and evaluate gut contents to determine the type of diet. This kind of study can be difficult to do and is very expensive. Using a mink field study from the Midwest would be much more accurate than using different assumptions of the diet. EPA is of the opinion that the diets would be similar enough not to make the risk calculations inaccurate.

**Comment 79:** Pg. 21 last paragraph. This paragraph tells us that the fish were tested for PCBs using gas chromatography method. What is this method? How accurate is it?

**Response:** Gas chromatography is a laboratory instrument that can analyze various organic compounds down to parts per trillion level.

**Comment 80:** Pg. 29 There is an assumption that the consumption of crayfish at station 2 and 3 would be modeled after station 1 but the amount of PCBs in these crayfish could be more or less.

**Response:** EPA did only sample crayfish at station 1 but modeling PCB concentrations at stations 2 and 3 is accurate enough, especially considering the percentage of diet of crayfish used in the risk calculations.

**Comment 81:** Pg. 33 Discusses how the TRV used for the kingfisher is interpolated from dose-response plot from a chicken feeding study. How much would this affect the study?

Response: The comment may be interpreted two ways – how does interpolation affect the results, or how does use of chicken affect the results? The main effect of interpolation from dose-response plots is that the range between no effect levels and lowest effect levels is narrower than the range obtained without interpolation because, without interpolation, only those doses actually tested may be selected as effect levels. In most toxicity tests, there are 10-fold differences between each of the tested doses. The interpolated low-effect TRV is consistent with the PCB LOAEL-TRVs previously used by the Great Lakes Initiative and for the Sheboygan River and Harbor Superfund site, but the interpolated no-effect TRV is higher than the corresponding NOAEL-TRVs (see the Attachment to the Bennett's Dump ERA). Chicken are a sensitive species to PCBs, and therefore TRVs based on chicken toxicity data indicate higher risk compared to TRVs based on a less sensitive species. Since the sensitivity of kingfisher to PCBs is unknown, a second set of TRVs based on effects in doves is also used to bracket the kingfisher risk estimates.

**Comment 82:** Pg. 35 This is the first time I have seen PAC formula. How accurate is this formula?

**Response:** The formula itself is accurate, but the results are subject to the same uncertainties as hazard quotients (HQs). The main uncertainties of HQs are the uncertainties associated with exposure estimates (for example, dietary composition, foraging area, PCB concentrations in prey) and toxic effects (for example, the selection of TRVs).

**Comment 83:** Pg. 51-53. The assumptions of dietary composition and foraging for mink and kingfisher seem to be good.

**Response:** No response required.

**Comment 84:** Pg. 54 It states that seasonal data was not available. How much do you think the change in season would affect the calculations?

**Response:** Seasonal changes in fish concentrations have been observed but the change would only slightly modify the risk calculations.

**Comment 85:** 2.1.1 Fish Tissue- In paragraph 2 of this section that deals with the amount of locations and samples taken. Why were the tissues samples specifically limited to these locations? Even more what determines how far away the assessment will travel from the contaminated area to collect samples?

**Response:** Fish sampling locations were determined initially based upon easy access to the creek, usually where roads cross the creek since large amounts of sampling equipment are used to complete the fish sampling. EPA evaluates the initial data and determines if the locations are appropriate. At Bennett's Dump, the W. Maple Grove location is 5.5 miles downstream and fish PCB concentrations are at levels which do not produce risk levels that require further downstream sampling.

**Comment 86:** 2.1.1 Fish Tissue- The last sentence of this section of the assessment reveals that Creek Chub and Crayfish samples were not considered analytically for this study because these specific species were consumed less than the studied species. Do you feel that since Creek Chub consume significant amounts of sediment while feeding, the use of their samples would have been beneficial to the Human Health Risk Assessment?

**Response:** Creek chubs are not usually consumed by humans and using them in the calculations would make the risk assessment inaccurate and difficult to defend. Crayfish are consumed but it is very unlikely that individuals would use Stout's Creek as a source for crayfish.

**Comment 87:** 3.2.3 Exposure Scenarios- The last sentence of the subtitled section named: Youth Recreationalists that covers receptors assumed to be exposed through ingestion of fish. Why does this assessment evaluate exposure through the ingestion of fish only for adult receptors, when considering youth recreationalists?

**Response:** Children were evaluated in the risk assessment and are approximately double the risk associated with an adult.

**Comment 88:** 3.3.1 EPC Calculations- The last sentence on page twelve under the subtitle: Fish Tissue EPCs indicates that no sucker filet samples were taken. Why was the sucker fish not considered for the site-specific conversion factors?

**Response:** Whole suckers were obtained and converted to fillets by using a 50% reduction. Sucker fillets were not obtained due to the limited fish and the cost.

**Comment 89:** 3.3 Data Collection And Analysis- With in the paragraph and with in Figure 3 it is mentioned that during the year of 2003 fish sampling was conducted at station 2 only. Even though the data was considered not adequate for the risk assessment, why was data not collected from stations 1 and 3 for the year 2003? Do you feel that this lack of data affected the assessment in any way?

**Response:** No, EPA is of the opinion that sufficient data has been obtained to do an accurate assessment of the risk at the site.

**Comment 90:** Referring to 1.1 Site History, will reducing the Bennett's Dump concentration of PCB's to 11.3ppm be enough to control off-site contamination from increasing?

**Response:** The average concentration of 11.3 ppm PCBs is low enough to prevent the migration of PCBs to Stout's Creek through run-off due to the soil cover being present and the higher concentrations of PCBs being located in the buried quarries..

**Comment 91:** Referring to 2.1.1 Fish Tissue, the assessment states that the primary fish species in the exposed area are minnows which feed other larger fish. Will the fish

feeding on the minnows be contaminated with as high of a concentration that the minnow ingested was?

**Response:** Most likely they will be contaminated with levels as high as or higher, particularly older fish since PCBs bioaccumulate.

**Comment 92:** Referring to 2.2 Identification, are PCB's the only source of contamination on the site and should other contaminants be considered in this relocation program?

**Response:** We have sampled the groundwater for Volatile Organic Compounds (VOCs) and treatment of those compounds will occur if present in unacceptable levels. The State will be developing discharge criteria for the water treatment plant.

Comment 93: Referring to 3.2.1 Potential Contaminant Sources and Mechanisms of Release, if rain water lands on the contaminated site and runs off through drainage, is the water contaminated upon absorbing into the soil?

**Response:** Some contaminants easily partition into water but PCBs do not easily transfer into water. The low levels of contaminants at the site and the soil cover prevents runoff from contaminating Stout's Creek.

**Comment 94:** Referring to 4.1 PCB Toxicity, is "Chloracne" the first noticeable toxic effect sign that exposes itself or are there other early warning signs of PCB contamination?

**Response:** As mentioned in the Section, chloracne developed after a latent period along with pigmentation of skin areas, visual disturbances, gastrointestinal distress, jaundice and lethargy.

**Comment 95:** Referring to 3.3.1 Surface Water EPC, when water is extracted to be fed into the county water systems are PCB's detectable when passing though the system and can they counteract the contaminant to make the water safe for drinking?

**Response:** Bloomington's main water source is Lake Monroe which is not contaminated with PCBs. Four families around the Bennett's Dump site do use groundwater for drinking water but those wells are uncontaminated with PCBs at a 100 parts per trillion detection limit.

Comment 96: Referring to 2.1.1 Fate and Transport, if PCB's partition between media sources such as; water to air, soil to water, or sediment to water is there a risk of inhaling PCB mixtures off the contaminated site and if so, how far is it estimated that an airborne PCB can travel?

**Response:** Some PCBs are volatilizing from the Bennett's Dump site but based upon the residual levels and levels required to produce a risk from inhalation, unacceptable risk is

not produced from PCBs at the Bennett's Dump site. PCBs can travel many, many miles just by the fact that PCBs have been discovered in the Artic Circle.

**Comment 97:** Referring to 2.1.1 Fate and Transport, is it possible to speed up the photolysis process to help the degradation process and possibly help control the PCB population?

**Response:** The photolysis is referring to the lower chlorinated congeners which are more volatile. The heavier PCB congeners are not affected by photolysis, therefore, it is not likely that photolysis would break down PCBs to an acceptable level.

Comment 98: Referring to 4.2 Kingfisher Toxicity Reference Values, it is amazing to think of the possibilities of this contaminant traveling through birds and other wildlife that feed in the area and migrate to other climates. The possibility of a contaminant that was ingested in Indiana and then migrating to a warmer climate seems almost uncontrollable; does the EPA inform parts of the world that have a large number of wildlife migrating to their area of the contamination problem occurring in this area?

**Response:** No, EPA does not inform other countries. EPA's efforts are focused on addressing the risk at the site.

**Comment 99:** What possible signs should a recreational fisherman look for when catching fish to consume? Are there indicating factors as to whether the fish has been contaminated with PCB mixtures?

**Response:** It is not possible to tell just by observing the fish if they have been contaminated by PCBs. Most States distribute a guide to fish advisories for fisherman which will help them to make decisions on the fish that they have caught.

**Comment 100:** Do you feel that there should be further studies in the migration pattern of animals in relation with the areas of contamination of PCB's?

**Response:** The frequency of exposure to migrating animals at the Bennett's Dump site would be low, so for purposes of the Bennett's Dump risk assessment, EPA would not recommend further studies.

**Comment 101:** Introduction - I like how the very first paragraph clearly outlined the objectives of the risk assessment.

**Response:** No response required.

**Comment 102:** What exactly is a clay cap and what would it do to help the situation? I would think that most people would not know this.

**Response:** A clay or soil cap helps to prevent direct contact with the contamination and prevents runoff of contamination.

**Comment 103:** What is a hydrogeologic investigation?

**Response:** A hydrogeologic investigation refers to the study of the groundwater.

**Comment 104:** I like the clear explanation of each section contained in the risk assessment.

**Response:** No response required.

**Comment 105:** Data Evaluation, I'm still not quite sure what exactly COPCs are and how they relate to PCBs.

**Response:** COPC stands for chemical of potential concern and these chemicals are used in the calculation of risk. At Bennett's Dump, COPC are PCBs.

**Comment 106:** Exposure Assessment, I like the clear explanation and steps of the exposure assessment that are stated in the opening paragraph of the section.

Response: No response required.

**Comment 107:** If they are expecting that children will come into direct contact with the site as a result of the proposed subdivision, then why is direct exposure to soil on the site not being considered in the risk assessment?

**Response:** The source control remedy addressed the direct contact threat risk and institutional controls such as deed restrictions will be put into place to prevent development other than commercial/industrial.

**Comment 108:** I think that it was a good observation to note that there is a difference between low-income fishers and recreational fishers.

**Response:** No response required.

**Comment 109:** I like the fact that it is stated that the EPC is conservative.

**Response:** No response required.

Comment 110: What are RME conditions?

**Response:** RME stands for reasonable maximum exposure which represents the highest level of human exposure that could reasonable be expected to occur.

**Comment 111:** Toxicity Assessment, again, I like the clear explanation of the section stated in the opening paragraph.

**Response:** No response required.

**Comment 112:** I would like to know more about Yusho Disease.

**Response:** In 1968 in northern Kyushu in Japan about 2000 people were poisoned by PCBs and PCDFs (pyrolysis products of PCBs) which contaminated rice oil. Their condition was named "Yusho" disease. A similar poisoning by PCBs in Taiwan was named "Yu-Cheng" disease. The major symptoms of Yusho disease were dermal and ocular lesions, but some of the symptoms, such as irregular menstrual cycles and altered immune responses, were notable with respect to the endocrine disrupting activities of PCBs and related compounds.

**Comment 113:** What is a B2 carcinogen. I see that the classifications are explained later in the section. This is very helpful and informative.

**Response:** No response required.

**Comment 114:** I believe that the possible uncertainty factors should have been listed.

**Response:** The uncertainty factors are discussed in Section 5.5 of the Human Health risk assessment and Section 6.0 of the Ecological Risk Assessment.

**Comment 115:** Risk and Hazard Characterization, hazard index and hazard quotient were hard to understand.

**Response:** The Proposed Plan for Bennett's Dump contains information that may make it easier to understand.

**Comment 116:** Too many abbreviations!! If you are not familiar with what they mean, you forget what they stand for a paragraph after you read them.

**Response:** Abbreviations are used frequently in Superfund and this can be a problem sometimes considering the complex documents that are developed. We do put an abbreviation page at the front of the risk assessments but in the future will try to limit the abbreviations, if possible.

Comment 117: I reviewed Figure 3 of the Ecological Risk Assessment: "May 2004 Downstream Sediment, Water and Fish Sampling Locations." I observed on the map that there are four sampling locations, including Bennett's Dump, with the other three locations advancing downstream from Bennett's Dump respectively. I am assuming that these three testing sites were select since, according to Figure 3, they are close to intersecting roads. Has there been any discussion on whether or not other sampling locations should be established farther down from Location 3? Have PCB concentrations been diluted to acceptable amounts at or past Location 3? Also, is there a need to possibly establish testing locations along Beanblossom Creek?

**Response:** W. Maple Grove road which is over 5 miles from the site was farthest location sampled from the site. Results of the risk assessments show minimal risk at that locations which leads EPA to believe that sampling farther downstream is unnecessary.

Comment 118: Page 15 of the Ecological Risk Assessment says that no dietary studies on PCBs in the kingfisher were identified, and thus a direct diet comparison could not be made. Why were no dietary studies done on the kingfisher when they were done on the mink for the site? Also, if both the mink and the kingfisher's diet consist of fish and crayfish, would it not have been easier to measure dietary concentration of PCBs for the kingfishers as well?

**Response:** No site specific dietary studies were done for either kingfisher or mink at the Bennett's Dump site. The Ecological Risk Assessment used dietary studies completed in the Midwest for both kingfisher and mink. Completing field studies are difficult and expensive to perform and the EPA choose to use literature values to complete the risk assessment in a timely manner and values from the literature would expect to be similar to results from a field study.

Comment 119: I also reviewed Table B-2 in the Appendix section: "CTE Total PCB Concentrations in Diet and Station-Specific Risk, May 2004 Data." The table states that the PCB concentration in the diet of the kingfisher is higher than that of the mink at all three of the stations. Since, I am assuming, the mink is a larger animal and can ingest more fish at a time (an in effect more PCBs) than compared to the kingfisher, I would think that the PCB concentration would be higher in minks. Why does the data suggest the opposite?

**Response:** Mink and kingfisher feed differently. Mink not only feeds on fish but also on uncontaminated prey. Kingfishers feed mainly on fish.

Comment 120: My first concern comes from page two where you are talking about everything that has been cleaned up and removed from the Bennett's Dumpsite but it still says, "The final average PCB concentration of the remaining soil was 11.3 ppm." To me this seems like a high concentration to be left with especially after everything that has been removed and then covered up with a 12 inch-thick clean soil covering. Is this still a relatively high concentration rate for a site that has been cleaned up? I think it would have been better if more soil was removed and the final PCB concentration of the soil was at least taken down into single digits.

**Response:** The final cleanup value of 11.3 ppm PCBs is suitable for industrial development and with the soil cover, a direct contact threat is greatly minimized. In addition, most of the site is non-detect for PCBs but a few limited areas at depth contain higher PCB numbers which has influenced the average.

**Comment 121:** A total of 10 cubic yards of sediment was excavated from Stout's Creek in September 2000; sediment containing greater than 2.7 ppm PCBs was excavated and placed under the clean soil cover." This immediately follows the above statement from

the assessment. I found this to be very confusing you refer to everything that has been removed from the site, and how the final PCB concentration is 11.3ppm, but then directly following that you talk about sediment that contained greater than 2.7ppm PCBs were excavated and then placed under the clean soil cover.

**Response:** The very small sediment removal adjacent to the site in Stout's Creek was completed. This material was removed since it was within Stout's Creek. The site soils were remediated to an industrial PCB redevelopment standard which is different from sediments within Stout's Creek.

**Comment 122:** Why were the sediments containing greater than 2.7ppm not removed completely?

**Response:** We removed sediments to a level of 1 ppm which EPA deemed as being protective.

**Comment 123:** Does the 1ft deep layer of clean soil make that big of difference when you are putting soil contaminated at greater than 2.7ppm underneath it?

**Response:** Yes, the soil cover helps to prevent direct contact and runoff of the PCB contaminated material.

Comment 124: In the last full paragraph on page two you refer to "Land west of State Route 37, north and south of State Route 46, and south of Arlington Road in Sections 19 and 30 in Bloomington Township in Bloomington, Indiana has been proposed as the site of the Stoneybrook Park Subdivision." This site has been proposed to contain single-family units, multi-family units, and other units for commercial use and office use. With the Bennett's Dump site the way it is do you think it is safe for this sub-division to be made?

**Response:** The Bennett's Dump will not pose an unacceptable risk to the Stoneybrook Park Subdivision. The site has been remediated to PCB levels acceptable for industrial development and the springs which contain PCBs are being remediated through the onsite treatment plant.

**Comment 125:** Is there still the possibility that the PCBs can be leaked out into this site even if there are no high levels of PCBs at the time the sub-division is built, could the PCBs leak from Bennett's Dump and effect this area as the years go on?

**Response:** EPA is of the opinion that if the releases from the springs into Stout's Creek were not addressed through this ROD Amendment, they could have the potential to affect the sub-division. Otherwise, with controlling and treating the release of PCBs from the springs and placing institutional controls on the site such as deed restrictions, the sub-division will not be affected by the site.

Comment 126: In section 3-1 Exposure Setting Characterization you say "In addition, a second satellite fill area measuring about 30 by 60 feet lies 750 feet north of the main fill area. This small satellite area was removed from consideration as part of the site based on sampling conducted by EPA in 1991." If the last test on this area was in 1991, isn't it possible that some of the PCBs from the main fill area have leaked there way to this area? Especially since it is only 750 feet away from the main fill area and it has been over 10 years since the last test was done.

**Response:** The satellite area you are referring to was located near the entrance gate of the site and contained a few capacitors. This small area was fenced and after removing the capacitors, the area was sampled and it did not show PCBs and it was removed from further consideration. EPA is of the opinion that this area will not be affected by the main site. Another satellite area near Icebox Quarry was remediated during the 1999 soil remediation.

**Comment 127:** In section 3.2.1 it says "Additional mechanisms of release such as surface water runoff, erosion, and the generation of fugitive dusts are considered to be absent at the site because of remedial actions completed thus far."

**Response:** Due to the soil remediation in 1999, the issue of water runoff, erosion and fugitive dust were eliminated.

Comment 128: I like the potential receptors that you picked, however I think it would have been interesting to look at children 6 years old or younger more than you did. If the sub-division is made and families with young kids move in I think you will find more kids younger than 6 fishing than you expect. This just comes from the fact that I know in my family I started fishing at a very young age and I loved to go with my dad or whoever even if I wasn't fishing.

**Response:** The human health risk assessment did evaluate children, including the ingestion of fish and wading activities. Evaluation of other activities would not add value to the risk assessment and may be outside the scope of an RME.

**Comment 129:** I agree with the exposure pathways, which were chosen to be looked at. I think those are the main pathways in which people will be exposed in this area.

**Response:** No response required.

**Comment 130:** Lastly I like the set up of the assessment I just think it would be easier to follow if you put the tables in after the section they go with, I found it hard to keep my place as I was reading and had to scroll all the way to the end of the references before I was able to find the tables. It made it hard to keep track of where you were if you were reading and looking at the tables as you go.

**Response:** The format with the Tables together in an Appendix is helpful when a specific Table is referenced more than once throughout the document. EPA will take your comment in consideration in the future.

**Comment 131:** Will the sediment contaminated with PCBs cause harm to wildlife in the future since it is not be clean up with the new plan?

**Response:** The sediment contamination in Stout's Creek is under 1 ppm PCBs which is a level at which EPA feels is protective. The ROD Amendment proposes to capture and treat the springs contaminated with PCBs which will help to reduce the risk to human health and the environment.

**Comment 132:** I thought that it was good to include the history of the site and the lawsuits in the proposed plan because the hand out from the Feb 14 meeting lacked this information.

**Response:** The public meeting is a good forum to give a summary of site and the remedy proposed to remediate the contamination but with a 2.5 hour meeting, not everything can be presented. The Administrative Record contains a large amount of additional information for review.

**Comment 133:** Since Alternative 5 is the best proposal and most expensive one, which sector of government or organization will be providing the money for this clean up?

**Response:** The governmental parties are in negotiations with CBS to have the company fund the cleanup. If these negotiations fail, EPA may end up funding the cleanup and trying to recover the costs from CBS through litigation.

**Comment 134:** Another one of my concerns is how long will it take for the clean up and when would we be able to see the improvement of health in humans/wildlife and the decrease of PCB concentration at the site?

**Response:** Once the treatment of the springs begins, we should begin to see improvement in the fish. The timing as to when the fish will be at acceptable levels to protect human health and the environment is unknown.

**Comment 135:** Once the proposal is passed when will construction began on the remediation of the site.

**Response:** If an agreement is reached with CBS Corporation, EPA would expect construction to begin in the spring of 2007. Completion of construction is estimated to be in 2007 or 2008 depending on the results of the pre-design study.

**Comment 136:** Is it possible that while the construction is taking place that the PCBs would spread to create a larger remediation area? For example, remediation runoff from construction.

**Response:** Unlikely, but engineering controls will be put in place to ensure PCBs are not spread to other locations.

**Comment 137:** Once the PCBs are pumped from the quarries how long does it take for PCBs treated?

**Response:** PCBs were not scheduled to be pumped from the quarries in the alternatives evaluated for the remediation of Bennett's Dump. During the investigation phase, CBS did try to pump the buried quarries but water was not produced in large enough volume to consider as an option.

**Comment 138:** Is there a possibility that alternative 5 would not clear the area of PCBs and future outbreaks of PCBs could occur?

**Response:** Unlikely, but the remedy will require long-term monitoring to ensure that the remedy is functioning as designed. In addition, every five years, the remedy is evaluated to ensure that it is protective of human health and the environment.

**Comment 139:** Has there been previous discussions about the possibly of building a temporary waste to energy plant near the Bennett's Dump site?

**Response:** EPA is unaware of any discussions regarding a temporary waste to energy plant.

**Comment 140:** Is there any further community development planned in the area? If so what effect will this have on the 12 inch clean soil cap?

**Response:** Yes, further residential and commercial development is scheduled near the Bennett's Dump site. Please see document number 77 and 84 of update number 3 of the Administrative Record for further information.

**Comment 141:** Page 7 discusses the fact that pumping down the water in the Wedge Quarry complex affected the PCB flow into Mound Spring. Would it be possible to put a system in place to keep the water at the level that brings PCB contaminates in the water down?

**Response:** The passive quarry drain system will help to reduce groundwater flow from the springs which help to reduce the release of PCBs into Stout's Creek. Initially EPA evaluated an in-situ (in place) treatment system to try to destroy the PCBs in place by oxidation but deemed it unworkable.

**Comment 142:** Do developers and realtors have a legal obligation to tell potential property buyers of the historical and present conditions and hazards associated with living near the Bennett's Dump site?

**Response:** No Federal obligations are required to notify potential property buyers of issues associated with nearby Superfund sites. State or local governments may have regulations notifying property buyers of nearby hazardous waste sites. A buyer of a contaminated site would receive notice of use restrictions on the property.

Comment 143: From the Proposed Plan "In 1994, an agreement was reached to explore other remedial alternatives; however, little progress was made." I did not like that this agreement was not explained even in the vaguest detail. This was later followed this text with an explanation of the judicial order that followed. The judicial order was well explained. However, I do think that it leaves a lot to be questioned as to whether or not the 1997 judicial order was as thorough as the agreement that was stated to have had "little progress made". This takes away from the remediation that was actually done. If it were more extensive than the original remediation agreement would have required, it is lessened by the lack of explanation. If it were less extensive, an explanation is owed as to why it was not as extensive as the 1994 agreement would have dictated.

**Response:** The Administrative Record does contain the 1994 Operating Principles that the commenter references. In 1994, the parties to the original 1985 Consent Decree prepared the Operating Principles to guide their discussions as they explored alternatives to the remedy required in the 1985 Consent Decree. In 1997, the Court issued an order addressing the source control portion of the site remedies and gave a timetable to complete the source control but not the groundwater or sediment components. In 1999, the Court issued another order stating that the parties should continue to negotiate water and sediment issues.

**Comment 144:** Proposed Plan (pp.11-18) I have three questions in this section. First, why does the alternative 5 not include excavation of the deep-buried quarry pits? To me, it seems that implementing both excavation of residuals and the proposed alternative 5 (trench and carbon treatment) at the same time would clean up the site faster. The other questions pertain to "a pre-design study" described on page 13. Is the time for this study included in the estimated time to achieve RAOs? Additionally, how much time is estimated for completion of the study?

**Response:** EPA is of the opinion that adding the excavation of the buried quarries to the collection trench would not greatly improve the site remedy. The difficulty in excavating the PCBs in the buried quarries with the contamination intermixed with soil and debris, particularly when groundwater is within the quarries leads EPA to believe that focusing the remediation on water treatment. Considering the PCB levels in groundwater are fairly low but at unacceptable levels, it is unknown if the additional excavation will reduce the time of water treatment. The pre-design study should be completed in less than one year.

**Comment 145:** If Alternative 5, Passive Quarry Drains with Interceptor Trench and Carbon Treatment, is selected and implemented for the Bennett's Dump site, will the EPA continue to monitor the PCB levels in the water? If so, how often will these waters be tested for PCBs? At what points along the stream will these tests be done (quarries,

Stout's Creek, etc.)? Does the "Cost" evaluation criteria include these tests for the life of the cleanup?

**Response:** A monitoring program will be implemented but the details have not been determined. Water and sediment sampling will be part of the monitoring program. Yes, the costs do include typical monitoring costs but no final monitoring program is developed.

Comment 146: In addition to monitoring the waters for PCBs, are there any plans to monitor the sediment at the site for contamination? According to the Proposed Plan, the EPA has determined that sediment contamination does not pose unacceptable risks to human health and the environment. However, the Plan also states that there has been still some sediment testing done at Bennett's Dump, as recent as November 2005 conducted by CBS. If EPA decides to not monitor the sediment, will others such as CBS continue to monitor the site for sediment contamination?

**Response:** See Response to Comment 145.

Comment 147: At the public meeting, there were some citizens who claimed to have lived near PCB-contaminated sites in Bloomington, where their health has been negatively affected from the sites. One citizen in particular asked if they are any plans to provide them compensation for these negative affects. Are there any plans in the future to compensate these residents if it is proven that they have developed adverse health effects from the contaminated sites?

**Response:** EPA does not have any current plans to compensate individuals who claim that they were affected by the Bennett's Dump site. Congress has not given EPA authority to award such compensation.

Comment 148: After attending the public meeting on February 14th and reading over the Proposed Plan and other presented information related to the Bennett's Dump site, I would agree that Alternative 5: Passive Quarry Drains with Interceptor Trench and Carbon Treatment, is the overall best choice given the five alternatives. Have you or any of your colleagues or representatives from the EPA reconsidered other options, based on comments from the public meeting and/or any new information about the site that may have come to light?

**Response:** Yes, remedies have been modified based upon public comment. The EPA did consider public opinion when the original incineration remedy was not implemented. For operable unit 2 and 3, EPA did not consider other options.

Comment 149: EPA has determined that sediment contamination does not pose an unacceptable risk to human health or the environment. This portion confused me in a number of different ways. If this is true, does this mean that there is not an unacceptable risk at the present time? If so will it never pose a threat no matter the time frame of remediation? This needs to be clarified as to why this is not a risk in the future. I did not

like this sentence directly following the lines explaining cost as a factor in evaluating remediation. I realize cost is definitely a factor but I also believe it may come off as the most emphasized factor after talking about not having remediation of the sediment in the area. A simple explanation for the reasoning behind the decision will strengthen the document in my opinion.

**Response:** Sediment is not contaminated at levels which produces unacceptable risk. By implementing the passive quarry drain and groundwater collection trench with treatment, the sediment is not expected to become recontaminated. Additional monitoring of the sediment will occur over time to ensure the sediment does not become recontaminated and produce unacceptable risk. Cost is one of the criteria that is used to evaluate alternatives but it is not the driving factor in decision making.

Comment 150: After the 1999 remediation, a series of periodic flowing springs and seeps developed containing PCBs. These springs discharge directly into Stout's Creek, which flows along the western edge of the site. Historical analysis of aerial photographs shows springs on the site, but not at the location of the current springs. I was confused as to what this means exactly. Does this mean that the 1999 remediation was unsuccessful? Has this problem been remedied? If not what is to say that after remediation the sites will not become once again contaminated from other water flows? This stuck out for me as a weakness in the document. With some explanation it can be quickly explained and strengthened.

**Response:** EPA is of the opinion that the springs have been located on the site but at different locations. Adding a soil and clay cover to the site after the 1999 source control remediation appears to have changed the location where the spring releases water to Stout's Creek. This was caused by the clay forcing spring water to exit at a different location by blocking the previous pathway. Also, please see Response to Comment 257 for additional detail. The 1999 source control remediation was successful in terms of abating risks resulting from the direct contact threat but did not address PCBs in the buried quarries and in bedrock which come into contact with groundwater. This contamination will be addressed by the selected remedy.

Comment 151: EPA believes that human exposure to PCBs from the site results from three pathways: Fish consumption through fishing within Stout's Creek Exposure to sediment within Stout's Creek through skin contact and incidental ingestion. Exposure to surface water within Stout's Creek through skin contact and ingestion. This really alarmed me to look back at the first critique and further question what parameters were considered in the decision not to remediate sediment. I think that it should also be explained what the criteria was in determining risk. Was sediment deemed safe for a normal functioning adult or was it deemed not an unacceptable risk for a child from 2-4 years old who may consume as much as 5 grams of soil in a day. I would like to know if sensitive populations such as children or pregnant women were being considered in the evaluation.

**Response:** The human health risk assessment did evaluate the incidental ingestion and dermal (skin) contact with sediment from Stout's Creek or both children and adults. To assume that a child would consume 5 grams of sediment per day for an extended period of time would not be a RME type of exposure and would be highly unlikely. Pregnant women were not considered due to the inability to quantitatively evaluate the risk.

**Comment 152:** Overall I felt the document was informative but may have lacked a few explanations. I liked the maps and thought they were well placed and informative. I would have liked to see the map on the second page to be bigger for easier reading.

**Response:** EPA will consider larger maps in future documents. Many more detailed maps are available in the Administrative Record.

**Comment 153:** On page 10 of the proposed plan you write in the bottom paragraph on the left RME scenario and CTE HQs. What do these stands for and what do they have to do with the effects on ecology in the fish and minks in the area?

**Response:** RME stands for reasonable maximum exposure and CTE stands for central tendency exposure. These concepts refer to the amount of PCBs the individual or animal is exposed to.

**Comment 154:** Are there any other sites that are being looked at in the Bloomington area that could possibly be as large as the superfund site at Bennett's Dump?

**Response:** The Lemon Lane Landfill and Neal's Landfill are larger sites than Bennett's Dump and EPA is in the process of developing the final remedy for both sites. Sites outside the scope of the 1985 Consent Decree that still require remedy implementation include the Fluckmill Road sludge site and the cleanup under the former Westinghouse capacitor plant on Curry Pike Road. Both those sites are small compared to the Bennett's Dump site.

**Comment 155:** Do you think that the actions taken will need to be changed in order to clean the site or due to your experience in the field do you feel that this action could also be used at the site at Fluckmill Road?

**Response:** EPA is not of the opinion that the actions taken to date will need to be changed and we expect that the Fluckmill Road site will require further delineation of the extent of contamination and most likely excavation and offsite disposal to residential PCB cleanup standards.

Comment 156: The opening sentence of this document does a good job of laying out its goal. I know right from the start that this was going to deal with the possible solutions that could clean up the PCB contamination at Bennett's Dump. I think it was important that this was brought up early on.

**Response:** No response required.

**Comment 157:** Discussing the history of the site was obviously very crucial. The background information given talked about what the problems have been at the site throughout the years and what has been done in the past in terms of cleaning up. I liked that because it allows for someone to really follow along with the whole process and understand how new remedial action relates to the large scope of things at the site.

**Response:** No response required.

**Comment 158:** When you discuss the site characteristics, you do so in a specific way. You don't generalize Bennett's Dump as a whole. You break down Bennett's Dump into the number of springs that comprise it. The different PCB concentration levels are noted for the different springs.

**Response:** No response required.

**Comment 159:** The section discussing risks was thorough. It provided the essential information as far as how PCBs can affect both humans and ecological components as well. The different pathways and media are discussed as well. This helps to give a better understanding of how people and other things can be exposed to PCBs.

**Response:** No response required.

Comment 160: You again state what the goals of remediation at Bennett's Dump will be. This is important because you really state what the intentions are going to be. Next, I thought the summaries of the five alternatives for cleaning up Bennett's Dump were provided. This is obviously important because it allows for anyone to see what the possible courses of action are. I thought it was very good that the expected costs were included. Tax payers have the right to know what they are getting into before remediation efforts begin.

**Response:** No response required.

**Comment 161:** Each alternative had to go through a criteria checklist to see which would the one to use. One criteria was that the community had acceptance of the proposal. The EPA has chosen alternative as their choice. After reviewing each of the alternatives, I support that decision. I hope it can be implemented soon.

**Response:** EPA would like to have CBS implement the site remedy as soon as possible.

**Comment 162:** How will this plan change if funding is increased or decreased for this site?

**Response:** If EPA must fund the construction of the Bennett's Dump remedy, a funding decrease, though unlikely, could slow the implementation of the remedy.

**Comment 163:** The site background is thorough. I thought it was very interesting how the site map was done with the charts involved as well giving additional information.

**Response:** No response required.

**Comment 164:** Could you better articulate what recharge to the groundwater flow is? (pg 5)

**Response:** Recharge to groundwater refers to how the groundwater is replenished by rainfall or a pool of water such as the water-filled quarries surrounding the Bennett's Dump site.

Comment 165: Under the site background on page two of the proposed plan it talks about the remedial measures taken in 1983. It states that a clay cap was covered over the site. I was wondering if these clay caps ever break down and if there is a possibility in the future that these covered PCBs might get into our groundwater.

**Response:** Clay caps can fail without proper maintenance. As part of the source control remedy implemented by CBS in 1999, a maintenance plan for the cap was approved by EPA and continues to be implemented by CBS

**Comment 166:** On the third page of the paper it discusses how in 1999 a cleanup in which 36,172 tons of PCBs were cleaned up. It says that after the cleanup was complete that there was a 11.3 ppm of PCBs still in the soil and it was just covered in 12 inches of soil. Is it still possible that these PCBs are present and could still enter our groundwater?

**Response:** PCBs are present at low concentrations at the site. EPA is of the opinion that the residual PCBs at the surface of the site within the soil are not the source of the groundwater contamination.

**Comment 167:** On page three it also discusses how PCBs were found in the quarries and they were mixed with diesel fuel. Does this cause an adverse effect and could it be more harmful to people? I have heard of many people swimming in these quarries before, especially college students in the summer. Are they in danger of PCB exposure?

**Response:** The PCBs intermixed with diesel fuel was found in groundwater, not in an open water filled quarry that is sometimes used for swimming. Open water filled quarries are on the Bennett's Dump site and one quarry does have very low concentrations of PCBs. Based upon the concentrations, frequent swimming would probably produce unacceptable risk. It should be pointed out that the water filled quarries on the site are on private property and no evidence is available that shows that these quarries were used for swimming.

**Comment 168:** Since there has been a population increase in the area due to North Park don't you think that the residents should be warned of the possible PCB problems that

could occur so they keep there children away until the problem have been taken care of? How might you go about informing them?

**Response:** The final remedy for Bennett's Dump will have institutional controls to prevent direct contact to contaminated material. EPA will continue to do public outreach to the citizens of Bloomington regarding the status of the cleanup, including the North Park Development.

**Comment 169:** In the ecological risks it talks about fish eating birds. What about the majority of birds that eat worms? These worms are affected by the contaminated soil and intern affects the birds.

**Response:** The commenter is correct that worms can uptake PCBs and produce risk to certain types of birds and this pathway is evaluated in some risk assessments. Evaluating the risk to fish eating birds is more conservative than evaluating birds which feed on worms since contaminated fish are over a much larger area and only low levels of PCBs remain in the site soils.

Comment 170: The alternative that you chose is very good and makes a great deal of sense. Is it possible however, that you may still need to complete some of the objectives from article four? Until the buried quarry pits are cleansed of PCBs there will still be PCBs present in groundwater due to on-site springs.

**Response:** The difficultly in excavating the buried quarries and the likelihood of still having to treat groundwater makes Alternative 5 the best alternative.

**Comment 171:** On page five of the proposal in the fifth paragraph of the Geology and Hydrogeology, a Long-term Groundwater Monitoring Plan is mentioned. However more detail about this plan could be useful. Such as including testing procedures, duration of testing, and locations of tests. This data can clarify that all aspects of the site remediation are being considered.

**Response:** A number of documents in the Administrative Record are available which describes in more detail the testing which has occurred.

**Comment 172:** On page seven in the Sediment Data section again more data about the sediment tests would be beneficial. Including testing procedures, duration of testing and the location of proposed tests can elucidate this section.

**Response:** A number of documents in the Administrative Record are available which describes in more detail the testing which has occurred.

**Comment 173:** In the Human Health Risks section at the top of page nine there is mention about a new development near Bennett's dump. Drinking water dangers for this community are mentioned as a consideration in this proposal plan. The plan then asserts that groundwater contamination is not an issue because the community will be fed by the

City of Bloomington water supply. I believe that it is a good idea to use the municipal water supply but future uses for the groundwater under the North Park Development. Just because in the near future there is not any planned use for the groundwater, does not mean that this groundwater should be overlooked.

**Response:** Groundwater is not being overlooked. The contaminated groundwater is being captures and treated. In addition, long-term groundwater monitoring will be part of the cleanup.

Comment 174: No where in the proposal plan is there mention of reducing future exposure. The North Park Development will most likely have children moving into the area. Previously there were only ten houses within a half mile of Stout's Creek. Now there will be many more structures near that area. Are there any plans for educating the new residents of this development about the problems associated with the area? Will there be signs posted around the area or even fences used around the most severely contaminated area? These will be concerns of the new families that will be moving into this area.

**Response:** The commenter is correct that institutional controls, such as deed restrictions and fencing are part of the final remedy. EPA will continue to do outreach with the community to keep them informed as to the progress of the cleanup.

Comment 175: As an environmental management major at Indiana University, I have concerns about the abundance of PCB contamination and numerous superfund sites. I am learning about the process of risk assessment in one of my classes. I read the Proposed Plan for Bennett's Dump, and my concerns grew. Although I am in the process of learning more about environmental risks, I do understand more than the average citizen. In reading this plan, though, I became confused. I think that documents written for citizens should be more understandable.

**Response:** The commenter is correct that some of the technical documents and terms used can be confusing, but EPA mailed approximately 6,000 fact sheets to the public which are written in a much more simplified version than the Proposed Plan. By using the fact sheet, the public then can become more involved if they so desire. In addition, the COPA web page and CIC meetings can be used by the public to become more involved and ask questions to the governmental parties.

**Comment 176:** What is the plan for? In reading the document, some parts sounded as if remediation was complete.

**Response:** Portions of the site remedy are complete. The Proposed Plan describes the alternatives evaluated for the water and sediment operable unit.

**Comment 177:** In talking about an incinerator, since it will not be in Bloomington due to recent laws, which incinerator would be used?

**Response:** During the source control phase of the cleanup in 1999, a permitted off-site incinerator in Texas was used to incinerate PCB containing capacitors disposed of at the site. Incineration is not a planned component of the current two operable units.

**Comment 178:** Do you feel that it is irresponsible to plan to incinerate the toxin and possibly harm others somewhere else?

**Response:** The original incineration remedy proposed for the Bennett's Dump site was scheduled to use experimental technology. Based upon many factors, the remedy was not implemented. Incineration can be effective technology if appropriate controls are put in place. Off-site incineration was used pursuant to the Toxic Substances Control Act for capacitors disposed at the Bennett's Dump site. Prior to using any off-site treatment technology, such as incineration, or containment technology, such as landfill disposal, EPA must check the compliance status of the facility to ensure that it meets all the local, State and Federal requirements and the facility does not have any violations.

**Comment 179:** What is being done about the concentrations of PCB's in animals? I feel that a fish advisory will not be enough. Bioaccumulation will continue to harm the animals, and could spread the contamination.

**Response:** By implementing Alternative 5, the risk to animals will be reduced or eliminated over time.

**Comment 180:** How far has the contamination spread due to runoff from rainwater?

**Response:** After the source control portion of the remedy was completed in 1999, rainwater has not spread the contamination to other areas.

**Comment 181:** Even after cleanup, will there still be risks?

**Response:** With the implementation of Alternative 5, the risks will be reduced over time. The PCB levels in fish will not decrease quickly but over time the PCB levels are expected to decrease to acceptable levels.

**Comment 182:** When the toxin mixed with fuel and the criteria wasn't met, was any action taken?

**Response:** During the 1999 remediation, groundwater was discovered which contained PCBs mixed with diesel fuel located within a former quarry pit containing rubble and debris. The area was excavated as much as possible, including the pumping of water in the excavation but it was determined that this area would be filled with clean fill due to the depth of the excavation and large amounts of groundwater within the excavation. A detailed description of the activities in located in the Bennett's Dump Final Report, dated February 7, 2000 which is located in the Administrative Record.

**Comment 183:** Is the situation really not as bad as it sounds in the plan, or is it just sugar coated so as not to alarm the public?

**Response:** Unacceptable risk to both human health and the environment is present as described in the two risk assessments. Through the implementation of Alternative 5, this risk will be reduced over time.

**Comment 184:** Many people I know that are not an environmental major have no idea about the problem occurring basically in their back yard. How much effort has been made to really make the public aware? Do you feel that more effort should be made to make more aware?

**Response:** EPA has done a large amount of outreach to the public. Frequent community meetings are held and EPA has provided the funding for a Technical Assistance Grant to COPA. COPA has hired experts to evaluate technical information along with developing a web page to help in the distribution of information. EPA also mailed over 5,000 fact sheets to nearby residents.

**Comment 185:** What would it take to completely remediate the site and eliminate all risks?

**Response:** The implementation of the source control in 1999 along with implementing Alternative 5 will remediate the site. Due to the PCB contamination in fish, the risk will be reduced over time since the release of PCBs will be greatly reduced. EPA is of the opinion that over time, risk will be eliminated.

Comment 186: My only real concern is the use of incineration to dispose of the capacitors from the site. I'm worried that the burn will not burn completely and result in the volatilization of not only the PCBs, but also other pollutants. Also, would taking the waste to a hazardous waste dump be an appropriate alternative? If so why isn't this the plan for remediation? (Especially since the citizens of Bloomington seem to be opposed to the incineration plan)

**Response:** The source control cleanup in 1999 used off-site disposal in a landfill of PCB contaminated material along with off-site incineration of PCB containing capacitors. The Proposed Plan addresses the risk associated with water and sediment.

**Comment 187:** I agree with the plan for treating the groundwater at the Bennett's Dump site. I think that the plan to excavate the sites could potentially cause more problems because fissures in the limestone would cause water to travel, thus exacerbating the problem.

**Response:** EPA agrees that the presence of contaminated groundwater would complicate efforts to conduct further excavation at the Site.

**Comment 188:** Is the problem being solved by relocating the material that exceeds 25ppm at the Bennett's dump site? Does all contaminated material need to be removed and is this possible?

**Response:** The source control cleanup in 1999 removed PCB contaminated soil from the site and the final cleanup level was 11.3 ppm PCBs. All the contaminated material does not require removal since the PCB levels remaining are acceptable for industrial or commercial development.

**Comment 189:** Can we begin to filter the water at the Stout's creek site to reduce the concentration of PCB's so that other areas are not affected downstream?

**Response:** EPA is not filtering the water in Stout's Creek but capturing spring water and removing the PCBs prior to discharge to Stout's Creek. This will prevent further contamination from reaching downstream in Stout's Creek.

**Comment 190:** Has the PCB contamination problem become more than we can deal with and does the fact that the courts dragged their feet for almost twenty years have anything to do with the high amounts of concentration we see today?

**Response:** The continuing release of PCBs over time has made addressing the problem more difficult. The problems with implementing the original incineration remedy and the delays trying to reach agreement with CBS on alternative remedies have been one reason for the delay in the remedy decisions. In addition, a large amount of investigative work was required prior to the remedy decisions. EPA is of the opinion that it can deal with the present PCB problem through the remedial measures described in the proposed plan.

**Comment 191:** Do you feel that the limited sites listed are the only areas affected by PCB's or are there possibly other sites that do not have quite as high of a concentration, but are still affected? Can these "other" sites re-contaminate if the problem is not solved as a whole?

**Response:** A PCB site has been discovered recently and is located where Clear Creek meets Fluckmill Road. This small site has not been fully defined but preliminary information indicates that a cleanup will be required. Even though EPA does not expect large PCB contaminated sites to be discovered, smaller sites, particularly sewage sludge sites still may be discovered in the future that contain PCBs at unacceptable levels.

**Comment 192:** Do you personally feel that the best alternative to controlling the problem should be "Passing Quarry Drains with Interceptor trench and Carbon treatment" even though the capital cost compared to present worth ratio is higher than "long-term groundwater monitoring"?

**Response:** Evaluating the alternatives to remediate Bennett's Dump, it was determined that long-term groundwater monitoring only would not be protective of human health and

the environment. EPA is of the opinion that Alternative 5 is the best balance of the nine criteria.

**Comment 193:** I know it says that option 5 is supposed to be very effective in the long run, but looking in the short term it seems that option 4 would be better, and it seems that option 4 would also be just as effective in the long run. The major difference that I can see in the two options is the cost, how much of a role did the cost have in deciding which option would be used?

**Response:** Due to the similar costs for both Alternative 4 and Alternative 5, cost only played a minor role in the decision making. The difficulty in excavating the buried quarries played a much bigger role than cost.

Comment 194: It seems like they both take the same amount of time to construct and, both are supposed to reach the RAO's in the same amount of time, so will there be that much of a difference in the release of PCBs into Stout's Creek? In option 5 you are just capturing and treating, which to me seems like there could be problems that come with this, and in option 4 you are actually removing most of the waste that contains the PCBs. I was just wondering if you had an idea of what the PCB concentration would be around if option 4 was used and what the PCB concentration is going to be around after option 5 is implemented?

**Response:** Implementing Alternative 4 in EPA's opinion would not eliminate the need for groundwater treatment. In addition, the difficulty in completing the excavation in buried quarries at depths which would require specialized equipment with groundwater present in the excavation makes Alternative 5 the best alternative. It would be only speculation as to what concentrations would remain if either Alternative 4 or 5 was implemented.

**Comment 195:** Alternative 5: Passive Quarry Drains with Interceptor Trench and Carbon Treatment. I was just wondering if you could tell me more about how this trench works it seems to me like there could be a lot of problems that could cause this to go wrong.

**Response:** More detail on the design of the trench will be provided in the future. The conceptual approach will be a trench cut into rock to a depth of about 8 feet. The trench would be lined and water would flow into the trench and be gravity fed or pumped to a treatment plant. This technology has been used at many other sites.

**Comment 196:** It says that you are assuming that ground water flow is 100 gallons per minute during storm events how did you come up with this number?

**Response:** The 100 gpm estimate was determined by evaluating spring flow records. The final size of the collection system will depend on how effective the passive quarry drain system is in reducing groundwater flow.

**Comment 197:** What happens if there is a lot of rain and severe flooding and ground water is moving at faster than 100 gallons per minute will this trench be able to hold it, or will it flood?

**Response:** The design of the collection system will take into consideration severe rain events and a factor of safety will be put into the design. The final size of the collection system will depend on a pre-design study but if the system is designed to handle 100 gpm and for some reason greater flows are produced, these could bypass the collection system.

**Comment 198:** Has this method been used anywhere else? If so how effective is it and how often is it used? And have there ever been any problems associated with using a trench like this?

**Response:** Yes, collection trenches have been used at other sites and are effective in capturing groundwater.

**Comment 199:** I don't really understand how the carbon treatment works. How is the carbon released into the trench used to treat the water?

Response: Carbon adsorption is very effective in binding some organic compounds, including PCBs. The carbon is in granulated form and when contaminated water containing PCBs comes into contact with the carbon, the PCBs bind onto the carbon and the contaminant is removed from the water. PCBs can bind onto particles or be in a dissolved phase and carbon is able to remove both PCBs bound onto particles or the dissolved phase. In many instances of water treatment, a multi-media filter is placed before the carbon to facilitate the removal of PCBs bound to onto particles. The remedy at Bennett's Dump for water treatment will use carbon but it will be contained in a vessel and not placed into the trench. Water will be collected in the trench and pumped to a carbon vessel for treatment, then discharge to Stout's Creek.

Comment 200: One of the recurring statements/situations presented in the "history" of these Superfund sites by the EPA is that under the Consent Decree a perfectly adequate solution involving complete removal of contaminants and incineration was planned, but rejected by the community. And by implication the resulting delays and difficulties in arriving at alternative solutions is the consequence of the community rejection of incineration. Complete removal was always acceptable, but coupled with incineration of the material along with the community's municipal waste and then, disposal of 600,000+tons of contaminated incinerator residues in a local hazardous waste landfill was rejected for very good reasons:

- a) Incineration a mix of hazardous and municipal waste was an untried technology
- b) The mix is inherently a "dirty" burn and could release products of incomplete combustion, volatized PCBs, dioxins, furans, and mercury and yield uncontrollable contamination to the atmosphere and to local drinking water supplies

- c) It would have required the community to fuel the incinerator through abandoning its recycling program or buying petroleum fuel to replace it,
- d) And was unlikely to work as shown by the state legislation which essentially required that it actually meet the "6-9s" (99.9999%) destruction goal. The federal 6-9s rule is actually destruction/removal effectiveness. By transferring the contamination to other media (air, water, or to another form) that goal is "met". What the state required was not a diversion, or sleight of hand, but actual destruction to non-hazardous forms. And even that was weak, in that it allowed creation of incomplete combustion by-products and release of mercury.

The destruction criterion set by the State was the "kiss-of-death" for the incinerator. It couldn't work when "push-came-to-shove" So, please stop blaming us for the rejection of the poor technology proposed in the Consent Decree. We recurringly smell a collusion of our government agencies and the polluter Westinghouse/Viacom/CBS to absolve them of complete cleanup. The inadequate water treatment at Illinois Central Spring and Neal's Landfill are examples of a poor remedies allowed by the Consent Decree based on inadequate site investigation, ineffective cleanups, and possibly worst of all, too much of it done at taxpayer expense.

Response: EPA disagrees with the commenter. There is no collusion between government agencies and CBS. In the early 1980s, the United States and its other government co-plaintiffs brought civil actions against CBS (then Westinghouse) for the purpose of cleaning up PCBs in and around Bloomington. These law suits were resolved in the 1985 Consent Decree that required CBS, among other things, to excavate all material from the Consent Decree sites and to incinerate this material in an incinerator that CBS design, built and operated. In 1994, in response to growing opposition to the incinerator, the parties put to one side this agreed-upon remedy in the 1985 Consent Decree and embarked down the path of exploring new remedial alternatives based upon new investigations of the sites. Since 1994, EPA has been committed to selecting new alternative remedies that will fully address unacceptable risks to human health and the environment posed by PCBs at the sites. To date, EPA has selected, after public comment, alternatives remedies for three of the six sites covered by the Consent Decree – Neal's Dump, Winston Thomas Sewage Treatment Works, and Anderson Road Landfill. CBS performed those alternative remedies. At present, EPA has not selected a final remedy for the three remaining sites – Bennett's Dump, Lemon Lane Landfill, and Neal's Landfill. While EPA selected, after public comment, a source control remedy for these sites, it has not yet selected the final remedy that will address PCB contamination in groundwater, surface water and sediment. The water treatment plants at Illinois Central Spring (which EPA considers to be part of Lemon Lane Landfill) and at Neal's Landfill are interim water treatments and are not intended to be the final remedy for the sites. EPA is presently engaged in selecting the final remedy for Bennett's Dump, which EPA has identified as Alternative 5 in its published proposed plan. As explained in that plan, EPA believes that the proposed remedial measures will fully address risks to human health and the environment.

Comment 201: Prior cleanup efforts only minimally removed the source of contamination. Field reports cite discoveries of pools of PCB oils with no attempt at removal. In addition to new springs that have developed subsequent to that removal, PCB contamination release to Stout's Cr. continues. The proposed alternatives accept the contamination and provide a "band-aid" fix. The EPA should proceed with full removal of all waste as well as installation of extraction wells directly in the dumps and treatment of water and residual PCB oils.

**Response:** The commenter is mistaken when discussing field reports which cite pools of PCB oils. During the excavation of Bennett's Dump in 1999, buried quarries filled with rubble and soil were discovered that contained groundwater. PCB oil as a sheen was mixed with the groundwater. Documentation of the excavation, including pictures of the open excavation is in the Tetra Tech oversight summary reports. Please see Response to Comment 210 for a discussion of why extraction wells would not be the best choice to capture PCB contaminated groundwater.

**Comment 202:** Where is the report on the mass balance exercise for PCBs in Stout's? What were the measured parameters, locations, and exact conclusions, particularly where are the other sources? How does the proposed alternative capture this contamination?

Response: Preliminary mass balance computations were made in the initial phase of the Bennett's Dump groundwater investigation and were reported in the February 2004 Final Groundwater Investigation Report (see page 40 and Figure 96). The follow-up mass balance exercise in Stout's Creek (summarized in Attachment 3 to the Responsiveness Summary) was conducted in October 2003. This involved collection of a series of samples along Stout's Creek and all known flowing springs. The measured parameters were PCBs, TSS, and Conductivity. The mass balance suggested a PCB discharge to the creek occurring downstream of Middle Spring and near monitoring well MW-5A. This subsequently led to investigations of shallow groundwater flow and a buried valley of Stout's Creek in 2004 and 2005. See also the EPA responses to Comments and regarding capture of the PCB contamination.

Comment 203: Is Rusty Spring exiting the filled debris where the old course of Stout's flowed? Is it intermittent? How is it flowing at right angles to the other springs in the buried trace of Stout's, yet does not pick up any contamination?

**Response:** Rusty Spring is located within the main channel of Stout's Creek between Mound and Middle Spring and does not appear to be exiting from valley fill. It is lower in elevation than either Mound or Middle and has a longer flow frequency. The spring is intermittent and typical flow rate is 1 to 2 gpm. The spring does have PCB contamination. There is evidence that the spring is hydraulically connected to the buried valley of Stout's Creek because pump testing of a well located within the buried valley in November 2005 resulted in a significant decrease in spring flow.

**Comment 204:** Assessment of PCB releases from Bennett's account for only a portion of the observed contamination in Stout's Cr. The proposed alternatives do not address the

stream contamination identified as coming from elsewhere. Are there other releases around Bennett's, or is this evidence of ongoing release from Lemon Lane which feeds Slaughterhouse Spring above Bennett's? Wasn't it already determined that the release from Lemon Lane went through Illinois Central Spring? Are we seeing a recurring picture here that any movement of waste on the sites changes the flow regime? Neal's and Bennett's developed new springs, and now there is evidence that the pre-"cleanup" assessment of contaminant release is no longer the full picture. Why not capture and treat all contaminated water?

Response: The commenter is referred to the large amount of sampling data which demonstrates no significant PCB contamination flowing into Stout's Creek from locations other than Bennett's Dump. The data do not demonstrate that other PCB releases upstream from Bennett's Dump exist. Slaughterhouse Spring has infrequently shown low levels of PCBs but has not affected Stout's Creek based on sampling data. A total of 40 of 42 routine monitoring water samples collected from Stout's Creek immediately upstream from Bennett's Dump during the 2000 to 2005 were non-detect for PCBs. The two qualified detections of PCBs during this period were just above the analytical reporting limit of 0.1 ug/L. EPA is not of the opinion that we are seeing a recurring picture that movement of waste on the site changes the flow behavior.

Comment 205: The use of fillet v. whole fish in the risk assessment is unclear. By "taking home a catch", the choice of whole fish or filet consumption is based on total mass consumed in the meal rather than a number of whole fish or filets. From my recollection as a creek fisherman, the smaller fish tend to be consumed as whole fish. Their bones are relatively soft and digestible. What might seem more appropriate is to measure the dioxin-like PCBs in the whole fish and filet, and then base the risk calculation on whichever is greater adjusted for a standard portion size, say 8 oz. Please clarify.

**Response:** EPA recognizes that some percentage of smaller fish may be consumed as whole fish -- as noted by the commenter, "their bones are relatively soft and digestible" and obtaining fillets from smaller fish may be more difficult because of their size. However, EPA believes that the majority of fish (both pelagic [for example sunfish] and benthic [for example, white suckers]) consumed by anglers will be consumed as fillets over the long-term. Therefore, for the purpose of risk assessment calculations, all whole body analytical results were converted to fillet equivalents. This allowed composite fish tissue concentrations (representative of consumption of both pelagic and benthic fish) to be calculated.

It should be noted that EPA did account for potential consumption of smaller fish by identifying fish as small as 80 millimeters (about 3 inches) in length to be "harvestable." EPA also accounted for the potential ingestion of whole smaller fish by increasing the percent of total fish body weight represented by fillets. These two conservative steps contributed to the calculation of higher more health-protective (conservative) location-specific fish biomass estimates and, therefore, sustainable fish tissue ingestion rates based on population studies conducted by CBS on Stout's Creek. The use of location-specific

health-protective fish tissue ingestion rates helps off-set any uncertainty introduced by not evaluating regular consumption of whole fish.

**Comment 206:** How are the nine criteria used in the selection of "best" alternative weighted? Are there primary and secondary (or even less important ones)? Can that analysis be presented to help in understanding the selection process? How can it be that other agencies did not comment on the proposed plans?

**Response:** First, regarding other agencies commenting on the Proposed Plan, they can submit public comments if they so desire. The United States Fish and Wildlife Service have been involved in site discussions and based upon those discussions, they support the implementation of Alternative 5. A description of the nine criteria and how they are used is described in the ROD Amendment.

Comment 207: Discussion of alternatives cites a reluctance to remove the remaining contamination as "difficult" and therefore less preferred. Considering that the quarrying operation moved blocks of stone at depths during a time when the machinery was quite a bit less advanced than now,... and kept the quarry dry, it is "difficult" to imagine that it is actually too difficult to remove the waste. How difficult is it actually? Digging a 800 ft long trench in solid rock at greater than 30 ft depth to intercept water would also seem to be "difficult". (Hopefully, I have not misunderstood that the 8 ft depth of the trench is measured from the surface of the quarry area. The springs are coming out at some 30 ft below the upper surface and to capture them requires a trench 8 ft below them, or at about 38 ft deep.)

**Response:** The 8 foot depth of the trench is a general estimate and would vary according to design phase data, elevation along the alignment and grade to achieve gravity drainage. The proposed interceptor trench would extend into the shallow bedrock along Stout's Creek. A typical trench bottom elevation near Middle Spring would be about 718 feet. EPA is of the opinion that you cannot compare the quarrying of limestone blocks to the excavation of PCBs in buried former quarry pits mixed with rubble, soil and debris. The difficulty in excavating the buried quarries would be dealing with the large amount of excavation at depth with PCBs mixed with groundwater. In addition, the need for groundwater treatment would still be required.

Comment 208: It is difficult to understand how leaving contamination in an unlined deposit, which is clearly leaking, is to be preferred to excavation and removal to a well-engineered containment facility is better for long-term protection. Although there is no actual destruction proposed anywhere in the alternatives, and any contaminants removed will go to a RCRA landfill, or TSCA combustion facility. There is no reduction in mobility or toxicity inherent in the alternatives. How would the contaminated carbon be treated? There is also the problem of removal of fine soil particles and there disposal. (Without removal, the carbon becomes coated and its removal efficiency plummets.) Please explain.

Response: The information obtained during the investigation of Bennett's Dump and the problems discovered during the 1999 excavation, particularly the influence of groundwater at depth, makes the excavation within the buried quarries extremely difficult. EPA and the State are of the opinion that excavating the buried quarries would not eliminate the need for further groundwater treatment. There is reduction in mobility and toxicity by capturing and treating groundwater using carbon adsorption. Carbon can be regenerated through thermal treatment if the values are less than 50 ppm PCBs. The commenter is correct that fine soil particles could foul the carbon but total suspended solids data from the springs does not indicate that this will be a problem. In addition, backwashing of carbon to remove suspended solids is very common with carbon adsorption units. If during the design phase fouling is determined to be an issue, it can be addressed through the use of filters or backwashing.

**Comment 209:** The removal alternative (4) is coupled with a passive remediation system. This adds to the cost and is difficult to understand. If the source of contamination is removed what need is there for an additional system?

Response: The purpose of adding the passive drain system to the excavation of the buried quarry pits is to minimize the amount of water to be treated by bypassing clean surface water around the PCB contaminated area and not allowing it to recharge groundwater and become contaminated. This is expected to reduce overall groundwater flow to Stout's Creek. In evaluating the excavation of the quarries and the difficultly in removing all the PCB contamination, the Agency was of the opinion that adding the passive quarry drain would ensure that releases would be reduced to Stout's Creek. Based upon the information gathered during the 1999 excavation, the difficulty with groundwater within the excavation and the large amount of rubble and debris from quarrying, would make it very difficult to remove all the PCB contamination. Therefore, the passive quarry drain was added. EPA is of the opinion that even if the buried quarries were excavated, water treatment at the site would still be required.

Comment 210: Little consideration was given in the proposed alternatives to simply emplacing an array of extraction wells in the zones of contamination and treating the more seriously contaminated water. Wells seem to be a cheaper alternative to an 800 foot-long trench emplaced below the Bennett's quarry zones which are 30 feet into bedrock. The excavation costs plus the backfill with clean gravel would seem to be prodigious. Please explain the costing of the alternatives.

**Response:** Pumping well arrays and extraction trenches each offer advantages and disadvantages. Wells require pumps but a cutoff trench may be gravity drained to one or a few sump recovery points. Tests have shown the well yields may be expected to be limited to a few gallons per minute and thus several wells would be required to depress the water table uniformly over a large area. The recovery trench may also take advantage of a buried former channel of Stout's Creek located east of the current channel for groundwater collection. Pump tests conducted in this area in November 2005 showed buried sand and gravel deposits in the channel to be interconnected but limited well yield could be expected.

With respect to pumping of zones of contamination, four test wells were installed in June 2005 into the contaminated quarry pit areas uncovered during the 1999 remediation. Pumping of the test well demonstrated hydraulic connection of the quarry pits, and PCB levels during a six-hour pump test were in the range of 150 to 280 ug/L. However, only one of these wells would maintain a 5 gpm pump rate.

Outside the quarry pit areas, PCBs have been detected in several shallow wells and piezometers completed at the bedrock surface within and adjacent to the 1999 remediation area. Theses wells and piezometers are located along a buried former channel of Stout's Creek that is located east of the current channel and downgadient of the quarry pits. The wells and piezometers extend along the buried channel for a distance of about 500 feet roughly parallel to Stout's Creek. The PCBs concentrations in the shallow groundwater from these wells ranged from 11 to 5,800 ug/L in October 2005. EPA believes that groundwater in this buried channel is a significant source of PCBs to some of the site springs as well as a source of direct PCB discharge to Stout's Creek. A pump test of one of these wells in November 2005 located near Middle Spring indicated that sand and gravel deposits in the buried channel were interconnected and produced PCB concentrations of 2.9 to 4.9 ug/L over a 48-hour test pumping period. Moreover, the pumping was observed to reduce the flow rates of Middle Spring and Mid-North Spring 98 percent and 93 percent respectively.

EPA believes that groundwater recovery at Bennett's Dump should be conducted in a manner to collect groundwater from the entire 500 foot length of the buried valley, the site springs, and the upgradient buried quarries. The proposed collection trench is located in a manner to fulfill all these recovery objectives and appears to be a better alternative that widely-spaced groundwater recovery wells.

Comment 211: The preferred alternative calls for a capture trench on the west side of the contamination source between it and Stout's Cr. Considering that the springs are intermittent suggests that release is induced primarily during rain events. Where does groundwater go when there are only small rain events and little spring addition to Stout's? Also considering that Icebox Quarry which is upgradient from the Bennett's sites shows contamination and that the groundwater flow is not towards the trench and Stout's Cr, but, instead follows more the regional gradient, which is more southerly than westerly. Also, consider other sources of contamination that appear to access Stout's Cr upstream. The system may be in the wrong location. Please clarify.

**Response:** Spring flow appears to be directly related to local groundwater levels and groundwater levels fluctuate seasonally as well as with storm events. As noted in the response to Comment 203, EPA believes there is direct "underflow" discharge of PCBs to Stout's Creek in addition to the known spring flow discharges. The proposed capture trench in the shallow bedrock allows capture of the underflow component of PCB release in addition to the direct spring flow component.

EPA's current thoughts are that Ice Box Quarry is contaminated from groundwater flowing into the quarry from the adjacent former Satellite area. In addition, the commenter is referred to the large number of piezometers installed at and around the site, which have been used to develop bedrock and potentiometric surface maps. These maps demonstrate shallow groundwater flow toward Stout's Creek and the proposed collection trench.

The EPA is not sure what the commenter is referring to as upstream sources of contamination. Other PCB sources upstream of the site in Stout's Creek are not producing PCBs at levels which effect Stout's Creek or the location of the collection trench. The commenter is referred to the sampling data from Slaughterhouse spring in the Lemon Lane Administrative Record.

Comment 212: The State requirement for a maximum of 0.79 ng/L release to streams is stated without reference to state regulations. Please identify the source and explain why the State granted such a discrepancy (300 ng/L) between what is required and what is proposed? Considering the cited impacts on mink and kingfisher, how can such an exception be used?

**Response:** The commenter is referred to the January 30, 2006 correspondence in the Bennett's Dump Administrative Record from IDEM to EPA regarding how the discharge criteria are calculated and implemented by IDEM. The following is taken directly from the IDEM correspondence.

"Based on the applicable water quality standards set forth in 327 IAC 2-1-6, the water quality-based effluent limitation (WQBEL) for PCBs in surface water outside of the Great Lakes Basin would be based upon the human health criterion of 0.70 parts per trillion (ppt). The WQBEL for PCBs would be substantially less than the limit of quantitation normally achievable for detection of PCBs in surface water. Consequently, in accordance with 327 IAC 5-2-11.1(f)(1), with respect to PCBs, IDEM inserts into the NPDES Permit, among other conditions, a provision stating that effluent concentrations less than the limit of quantitation are in compliance with the effluent limitations. For permits with WQBELs for PCBs, IDEM has been including Test Method 608 as the appropriate test method to use and the 0.1 ppb as the limit of detection and 0.3 ppb as the limit of quantitation. In accordance with 327 IAC 5-2-16- (c)(2), if at any time a new analytical method for detecting PCBs in surface water that allows for a lower limit of quantitation is approved by IDEM or the United States Environmental Protection Agency (U.S. EPA), IDEM will modify the NPDES discharge limits accordingly."

Considering the effluent limits, EPA is of the opinion that if the water treatment plant does treat contaminated water to under 0.3 ppb PCBs, then the future risk to kingfisher and mink will be within acceptable levels.

Comment 213: Claiming that there is no analytical method to achieve the required detection level and therefore allowing a 300 ng/L (~380X greater) release level is wrong. First, what method was used to determine the levels in Icebox Quarry as 100 ng/L, or used at ICS Treatment to get to 200 ng/L? Actually, modifications of standard analytical techniques (available under CLP as Special Analytical Service) can achieve detections much closer to the required target to protect the ecosystem. Even the standard method for PCBs (SW-846 Method 8082) can routinely achieve detections of PCB congeners of 5 – 25 ng/L With slight modifications, even lower detections are achievable. Because EPA is dealing with weathered PCBs, Method 8082 recommends congener analysis rather than Aroclors as more accurate. Congener analysis also measures the dioxin-like PCBs that are the really dangerous substances driving the remediation.

**Response:** IDEM has the authority for the development NPDES requirements. The substantive requirements it develops as part of its NPDES program may be applicable, or relevant and appropriate, substantive requirements for purposes of setting cleanup standards (unless waived) under the Superfund program. As described in the previous comment, IDEM has identified 327 IAC 5-2-11.1 as a relevant and appropriate cleanup standards, standards of control, and other substantive requirements, criteria, or limitations in determining PCB discharge criteria for any water treatment plant built at Bennett's, because it provides a way to determine a cleanup level for PCBs where the WQBEL for PCBs is 0.79 part per trillion and, therefore, is less than the limit of quantitation normally achievable and determined by the Indiana to be appropriate for PCBs. Accordingly, and consistent with its regulations, Indiana identified an approved analytical methodology that reliably can disclose PCBs in effluent at concentrations of 0.3 ug/l effluent standard would apply to the Bennett's Dump site.

**Comment 214:** The proposal of carbon-adsorption for water cleanup is reasonable, but is also flexible. By increasing surface exposure and water residence time significant improvements in removal efficiency can be achieved. Are there inherent limits on the partitioning of PCBs from water by carbon such that there is no way to achieve the state-recommended limit of 0.79 ng/L?

**Response:** The commenter wrongly assumes that the State recommended that the proposed treatment plant reduce the concentration of PCBs to 0.79 ppt. This is incorrect. The State recommended a discharge criteria of 0.3 ppb.

The commenter is perhaps confused about the difference between "water quality criteria" and "water quality based effluent limits" (WQBELs). The State has established a surface water quality criteria of 0.79 ppt for PCBs in waters of the State that are not part of the Great Lakes System. This water quality criteria is not the recommended effluent limit for the proposed treatment plant. Rather, it is the basis for the effluent limit determined by the State in accordance with 327 IAC 5-2-11.1. Relying upon this provision, in particular subparagraph (f), the State indicated to EPA that the effluent limit for the proposed treatment plant at Bennett's Dump will be 0.3 ppb. The proposed carbon adsorption technology will meet this discharge criteria.

Turning back to the commenter's question, it is true that there are inherent limits to the partitioning of PCBs from water by carbon. These inherent limits, however are not the basis for the 0.3 ppb discharge criteria identified by the State. The discharge criteria is based upon the inherent limits in the measurement of PCBs. Applying its standard test method for PCBs, the state has determined that the limit of quantitation is 0.3 ppb. EPA expects that the adsorption technology implemented under the remedy will reduce PCBs to a concentration that is substantially below the 0.3 ppb discharge criteria.

**Comment 215:** The presence of other contaminants such as diesel fuel can interfere with the capacity of carbon-adsorption of PCBs. Has this been taken into consideration in the selection of remediation technology?

**Response:** The commenter is correct that diesel fuel in high concentrations can interfere with the effectiveness of carbon adsorption technology. The levels of diesel fuel components discovered during the excavation phase along with sampling of the springs which does not indicate the presence of VOCs gives EPA comfort that carbon adsorption technology will be effective.

Comment 216: The similarity of water in Mound Spring and Wedge Quarry is based on specific conductivity and attributed to road salt. Where did the salt come from? Certainly not from deicing gravel roads on the quarry area. Was this confirmed by analysis of sodium and chloride concentrations? Considering that this is used to support plans for dewatering Wedge as a driver of Mound Spring releases, it may need an analytical confirmation. Also, if a source can be identified, what does this tell us about groundwater flow directions? There is a large highway maintenance yard nearby. Could this be the source?

**Response:** EPA is of the opinion that runoff from deicing SR-37 and SR-46 flowed into the Wedge Quarry complex via direct surface runoff. The southernmost open pits of the Wedge quarry complex are located directly at the foot of the interchange embankment. The relevant analytical data are presented in Table 12 of Viacom (February 2004) *Final Report for the Groundwater Investigation at Bennett's Dump.* Major cations and anions were analyzed by the Indiana University Department of Geological Sciences. The similarity of the water at Mound Spring and Wedge Quarry is based on direct measurements of chloride concentration, and the elevated chloride concentrations are generally reflected by high specific conductance values.

The referenced INDOT maintenance facility is located north or the intersection of Arlington Road and North Prow Road. Surface drainage from this facility is to the north and it is therefore an unlikely source of chloride to the Bennett's Dump area to the southeast.

**Comment 217:** More recent data suggests a recontamination of Stout's Cr sediment consequent to the 1999 remediation. It is used as part of the risk assessment and constitutes an ongoing source of PCBs after the new remedies are in place. Yet, no plans for further removal of sediment are included. Please explain.

**Response:** EPA does not agree with the commenter that Stout's creek has been recontaminated based upon the sediment sampling data. The sampling data shows PCB contamination under 1 ppm PCBs. In addition, the sediment alone did not show unacceptable risk with respect to human exposure. The lack of PCB contamination in the sediment and the low amount of risk produced by the sediment justifies not removing sediment from Stout's Creek.

Comment 218: Disposal of contaminated soil and residues captured in the treatment process will be evaluated for consideration as hazardous waste and if so, sent to an appropriate RCRA/TSCA facility. What analytical methods will be used for this evaluation? Somehow there is contamination in the water released to Illinois Central Spring, but none shows up in the treated water or in the removed sediment. Is there an analysis of the carbon to determine disposal needs? What plans are there for analysis of carbon for this new facility?

**Response:** Based upon information to date, the treatment residuals will be analyzed for disposal by using the Toxicity Characteristic Leaching Potential (TCLP) test and PCB analysis. The commenter is mistaken in the statement that contamination is not found in the sediment at the ICS water treatment plant. The carbon used in the treatment of the water will be tested for PCBs and based upon the concentration, either it will be disposed of in an appropriate landfill or it may be regenerated.

**Comment 219:** CBS states in its comments that Alternative I (No Action) should be chosen as the preferred remedy since the site does not present a significant risk to human health or the environment. CBS also states that EPA may continue to perform groundwater monitoring is they choose but any action at the site is unwarranted.

**Response:** EPA disagrees with the commenter. The No Action alternative would not address the risk to both human health and the environment.

Comment 220: National Pollution Discharge Elimination System (NPDES) program requirements of the Clean Water Act (CWA) are neither applicable, nor relevant and appropriate, requirements for an on-site water treatment plan if such a plant is constructed as part of the Bennett's Dump remedial action. First, CBS states that it agrees with EPA that NPDES permit requirements are not applicable. Next, CBS states that the substantive NPDES requirements are not relevant and appropriate for the water treatment plant, because the NPDES requirements regulate the "discharge of pollutants" (defined as the addition of pollutants to navigable waters) from a "point source." In this case there is no NPDES-regulated "discharge of pollutants," because the proposed plant would not add pollutants to those already occurring as a result of existing groundwater and surface water flows. In short, "the Bennett's Dump proposal does not involve adding anything to Stout's Creek which would not have flowed there if no action was taken." [Comment Letter at 6.] Instead, the water treatment plant would reduce (and not add) pollutants going to Stout's Creek. Further, there is no "point source" subject to regulation here, because "there is no human effort directing the flow of water. Rather, groundwater

emerges from natural springs and flows directly into surface water. The proposal is to intercept that flow and put the treated water back in the same place where it would naturally flow if not intercepted."

**Response:** EPA disagrees with the comment. The NPDES program requirements of the CWA are relevant and appropriate requirements for an on-site water treatment plant at Bennett's Dump.

As the lead agency for the site, EPA is charged by 40 C.F.R. § 300.400(g) with identifying applicable or relevant and appropriate requirements to the release or remedial action contemplated for the site. As the commenter correctly notes, EPA determined that the NPDES program requirements of the CWA were not "applicable" to the proposed water treatment plant at Bennett's Dump. This is because Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), specifically exempts remedial actions, such as the proposed water treatment plant, from the permit requirement imposed by the NPDES program. Nevertheless, EPA determined that the substantive requirements of the CWA were "relevant and appropriate" to the proposed plant. Specifically, EPA determined that 327 IAC 5-2-11.1, which sets forth the procedure for establishing a water-quality based effluent limits (WQBEL) for various pollutants including PCBs, was "relevant and appropriate" to establishing the effluent limit for PCBs discharged by proposed water treatment plant at Bennett's Dump.

CBS argues that substantive requirements of the NPDES Program are not "relevant and appropriate" because the proposed water treatment plant will not be subject to the CWA. CBS's argument confuses the difference between requirements that are "applicable" and those that are merely "relevant and appropriate." Even if a requirement is not "applicable," EPA is nevertheless required to determine whether a regulation may be relevant and appropriate to the circumstances of the release. 40 C.F.R. § 300.400(g)(2). A "relevant and appropriate" requirement means "those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that . . . address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site." 40 C.F.R. § 300.5 (emphasis added). EPA believes that the substantive requirements of the NPDES program are "well-suited" to the cleanup at Bennett's Dump because the NPDES Program, similar to the proposed CERCLA action, is concerned with abating the harmful effects of pollutants discharged into the nation's waterways.

Under 40 C.F.R. § 300.400(g)(2), EPA is required to examine eight factors, where pertinent, to determine whether a requirement addresses problems or situations sufficiently similar to the circumstances of the release or remedial action contemplated. Id, An examination of these factors (below) shows that EPA reasonably determined that the substantive requirements of the NPDES Program, including 327 IAC 5-2-11.1, were "relevant and appropriate" to the proposed waste water treatment plant.

Factor 1: The purpose of the requirement and the purpose of the CERCLA action: The objective of 327 IAC 5-2-11.1 is to establish water quality based effluent limits for pollutants discharged into waters other than those within the Great Lakes system. The State of Indiana has established water quality critiera to restore and maintain the chemical, physical and biological integrity of the waters of the state. Pertinent to the present case, the State has determined that the concentrations of PCBs in Indiana waterways shall not exceed .79 parts per trillion ("ppt"). Based upon this water quality criteria, the State has also determined, in accordance with the guidelines set forth at 327 IAC 5-2-11.1, that dischargers of PCBs cannot discharge PCBs at a concentration greater than .3 parts per billion (ppb).

The problem addressed by 327 IAC 5-2-11.1 is similar to the circumstances of the remedial action proposed by EPA for Bennett's Dump. Here, PCBs from the site are being released into Stout's Creek. To protect human health and the environment from these releases, EPA has proposed, among other things, constructing a water treatment plant to capture and treat the PCB-contaminate water before it is discharged into Stout's Creek. A critical question in implementing this remedial action concerns the amount of PCB reduction that is necessary. That is, EPA must determine what concentration of PCBs can be discharged into Stout's Creek without threatening human health and the environment. The procedure set forth at 327 IAC 5-2-11.1 is directly relevant to answering this question, and it is therefore appropriate for EPA to use 327 IAC 5-2-11.1 in selecting the proposed remedy.

### <u>Factor 2: The medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site:</u>

The State of Indiana's NPDES Program, including 327 IAC 5-2-11.1, is concerned with protecting the waters of the State from the harmful effects of pollutants, such as PCBs. Similarly, the proposed remedial action is concerned with protecting Stout's Creek – one of the State's waterways – from the harmful effects of PCBs. This factor, therefore, supports EPA's determination that State NPDES Program is "relevant and appropriate" to the proposed remedial action.

#### Factor 3: The substances regulated by the requirement and substances found at the Site:

The State of Indiana's NPDES Program, including 327 IAC 5-2-11.1, regulates the discharge of "pollutants," which includes PCBs. PCBs are also the contaminant of concern with respect to the proposed remedial action. Therefore, this factors also supports EPA's determination that the State NPDES Program is "relevant and appropriate" to the proposed remedial action.

# Factor 4: The actions or activites regulated by the requirement and the remedial action contemplated at the CECRLA site:

Like all NPDES program, the State of Indiana's NPDES Program regulates the "discharge" of pollutants into the State's waters. Section 503(12) of the CWA, 33 U.S.C.

§ 1362(12), defines the "discharge of a pollutant" in relevant part to mean "any addition of any pollutant to navigable waters from any point source." Here, the Bennett's Dump site is similar to a "point source" if it is not, in fact, a point source. EPA believes, therefore, that these circumstances at the site are similar enough to the activities regulated by the State NPDES program that the substantive requirements of that program are "relevant and appropriate" to the proposed remedial action.

Section 503(14) of the CWA, 33 U.S.C. § 1362(d), defines the term "point source" to mean "any discernible, confined and discrete conveyance . . . from which pollutants are or may be discharged." Cases brought under the CWA establish that the term "point source" is to be broadly construed. Dague v. City of Burlington, 935 F.2d 1343, 1354-55 (2d Cir. 1991); Albahary v. City and Town of Bristol, Connecticut, 963 F.Supp. 150, 152-53 (D. Conn. 1997). The term not only includes pipes or ditches, but also large land areas, such as strip mining pits and mine tailing ponds. In Washington Wilderness Coalition v. Hecla Mining Company, 870 F.Supp. 983 (E.D. Wa. 1994), the Court held that two dirt-filled mine tailing ponds and a third, active, unlined mine tailing pond from which contaminants were leaching could be point sources. Similarly, in Sierra Club v. Abston Construction, 620 F.2d 41, 45 (5<sup>th</sup> Cir. 1980), the Court held that a strip mine was a point source where "the miner at least initially collected or channeled the water and other materials" that eventually resulted in a discharge into a navigable body of water. See also Beartooth Alliance v. Crown Butte Mines, 904 F.Supp. 1168, 1174 (D. Mont. 1995)("This Court finds that Glengarry Adit, McLaren Pit, and Como Pit are 'discernable, confined and discrete' conveyances constituting point sources.").

All of these cases support the conclusion that the Bennett's Dump site is a point source. The site occupies an abandoned limestone quarry where stonecutters changed the surface of the land to direct the water flow or otherwise impede its progress. Evidence of this fact is plainly visible to this day because there are a number of large rain-filled quarry pits surrounding the site. Further human efforts to change the surface or direct water flow include the filling of the quarry pits with debris, garbage, and industrial waste including capacitors and PCB-containing dielectric fluids. As result of these activities, PCBs are now discharged from the site into Stout's Creek, and hence, the site is a "point source."

The cases relied upon by the commenter are not inapposite. Citing Sierra Club and Friends of Santa Fe County v. LAC Minerals, Inc., 892 F.Supp. 1331 (D.N.M. 1995), the commenter argues that various springs within the Bennett's Dump site are not point sources. This argument, however, misses its mark. Sierra Club and Santa Fe stand for the unremarkable proposition that a point source requires some human effort to direct water flow or impede its progress. Here, as already noted, the progress of water flow at site has been impeded by past human activities at the site. As result of these activities, water now collects in the debris-filled quarry pits and becomes contaminated with PCBs. After the water rises high enough that it overflows the buried pit, the contaminated water flows across the surface of the abandoned dump and enters into Stout's Creek. No more is required to show that the site is a "point source" or, at the very least, that the site is

similar enough to a point source that EPA reasonably determined that the substantive requirements of the CWA were "relevant and appropriate" to the site.

There are also other facts that further bolster this conclusion. For example, CBS has installed weirs along the paths of surface water flows from each of the three springs that now discharge PCB-contaminated water to Stout's Creek. Each of the weirs is a "confined and discrete conveyance" from which pollutants are discharged. Moreover, CBS has created a plastic-lined channel for the surface water flows associated with mound spring. This channel qualifies as a "point source."

A second argument made by the commenter is that future discharges from the proposed water treatment plant are not "discharges" under the CWA. Specifically, the commenter argues that the purpose of proposed plant is to *reduce* the concentration of PCBs entering into Stout's Creek. Since the plant is not *adding* pollutants to Stout's Creek, the commenter maintains that the effluent discharged by the plant does not qualify as a "discharge" for the purposes of the CWA.

This argument overlooks the fact that the site, not the plant, is adding pollutants to Stout's Creek. If the commenter's argument were correct, then a publicly owned treatment works (POTW) would not need to obtain an NPDES permit because a POTW does not add pollutants to the waste stream that flows through the plant. Rather, a POTW merely removes pollutants from the wastestream. Numerous courts, however, held that POTWs are subject to the NPDES program.

A similar argument to the one raised by CBS was considered and rejected in <u>Dague v.</u> City of Burlington, 935 F.2d 1343 (2d Cir. 1990). There, the City of Burlington argued that a culvert that conveyed leachate from a landfill was not a "point source" because the culvert did not add pollutants to the waters of the United States. The Second Circuit rejected this argument, and held that the landfill and the culvert were each point sources, explaining that the CWA was not limited to discharges that flowed directly into the waters of the United States. Id. at 1354-55. In Dague, the City of Burlington owned and operated a landfill that accepted industrial and municipal waste. Waste at the landfill was buried to a depth nine feet below the groundwater table on the northern edge of the landfill. The landfill was bounded on the west and northwest by a marsh area called the Intervale and by a Beaver Pond (which was part of the southeastern part of the marsh.) A railroad embankment bounded the north of the landfill and a culvert under the embankment connected Beaver Pond with the northeastern portion of the Intervale. Rainwater and run-off percolated into the landfill mass. Further, because the part of the landfill was below the groundwater table, groundwater mixed with landfill contaminants. As explained by the Court:

The leachate generated both by percolation of precipitation into the landfill mass and by flow of groundwater through the refuse. . . . Because the landfill is unlined, the leachate enters the upper gradients or 'flow tube' of groundwater under the landfill. The ground water then flows north beyond the landfill boundaries, and the flow tubes of the leachate-

contaminated groundwater all surface in the Intervale, north of and within 300 feet of the railroad embankment

Leachate has also emerged from the sides of the landfill via seeps. From there it flows into Beaver Pond and thence through the culvert under the railroad embankment and into the Intervale.

Id. at 1347. The District Court held that City-owned and operated landfill had discharged pollutants from a point source into waters of the United States in violation of the CWA. Id. at 1346-47; 1349. The District Court ruled that the point source here was the railroad culvert. The City of Burlington challenged that finding, arguing that the definition of a point source includes both physical and functional characteristics, and the culvert did not meet the functional requirement, because the culvert did not "add" pollutants to navigable waters and that pollutants would be added only when they are introduced into navigable waters for the first time. Id. at 1349; 1354. The Appellate Court rejected the City's argument that pollutant's must be discharged directly into navigable waters in order for the CWA to apply, and that liability attached where the defendants pollutants were discharged through conveyances owned by another. Id. at 1355. Instead the Appellate Court held that

[p]ollutants from the landfill directly enter Beaver Pond before flowing through the culvert into the rest of the Intervale. Both Beaver Pond and the rest of the Intervale are parts of the marsh, and both are considered navigable waters for purposes of the CWA. Thus, any pollutants flowing through the culvert have already entered waters of the United States before they flow through the culvert.

\* \* \*

Given the broad reach of § 13112(a), we agree with the district court that the Burlington culvert was a point source. We also note that the definition of a "discharge of a pollutant" refers to "any point source" without limitation. 33 U.S.C. § 1362(12). Since the City's landfill caused pollutants to enter Beaver Pond [a navigable water of the U.S.], and since these pollutants were then conveyed into the rest of the Intervale by the railroad culvert, the district court's conclusion that the city discharged pollutants into navigable waters from a point source properly applied the statute to findings that were not clearly erroneous.

<u>Id</u>. at 1354-55 (emphasis added). In short, under one reading of the emphasized language the landfill itself was the point source directly discharging pollutants into Beaver Pond in violation of the CWA and it was not necessary to look to the culvert as constituting the point source.

Factor 5: Any variances, waivers, or exemption of the requirement and their availability for the circumstances at the CERCLA site

Under 327 IAC 2-1-8.8, the State may grant a variance from a water quality standard used to derive a WQBEL for a specific substance. In making this determination, the State must balance the increased risk to human health and the environment if the variance is granted against the hardship or burden upon the applicant if the variance is not granted. This determination is similar to the one that EPA made in selecting the proposed remedial alternative. Specifically, EPA found that the proposed remedial action was the best choice taking into account a number of factors, including cost. For the same reasons set forth in the proposed plan as to why Alternative 5 is the best choice among remedial alternatives, EPA believes that the variance under 327 IAC 2-1-8.8 should not be granted in the present case. Likewise, EPA believes that various exemptions available under its own regulations should not be granted here.

# Factor 6: The type of place regulated and the type of place affected by the release or CERLA action:

As already noted, the State NPDES Program regulates dischargers of pollutants into the States' waterways. Similarly, under the proposed remedial action, EPA seeks to clean up a site that is discharging pollutants into a State waterway. Accordingly, this factor supports EPA's determination that State NPDES Program is "relevant and appropriate" to the proposed remedial action.

# Factor 7: The type and size of structure or facility regulated and the type of size of structure or facility affected by the release or contemplated by the CERCLA action:

As already noted, the State NPDES Program regulates "point source" of pollutants discharged into the State's waterways. Bennett's Dump is consistent with the size and type of point sources regulated under the Clean Water Act. The conclusion that the Bennett's Dump site is itself a point source is directly supported by <a href="Dague v. City of Burlington">Dague v. City of Burlington</a>, 935 F.2d 1343 (2d Cir. 1990)(holding city landfill was a point source). Likewise, the proposed water treatment plant is consistent with the size and type of facilities that are routinely subject to the requirements of the NPDES Program. Accordingly, this factor supports EPA's determination that State NPDES Program is "relevant and appropriate" to the proposed remedial action.

# <u>Factor 8: Any consideration of use or potential use of affected resources in the</u> requirement and the use or potential use of the affected resource at the CERCLA site.

The requirements of 327 IAC 5-2-11.1 apply to all waterways in the State that are not part of the Great Lakes System, regardless of the use or potential use of the waterway. Accordingly, this factor supports EPA's determination that State NPDES Program is "relevant and appropriate" to the proposed remedial action.

**Comment 221:** EPA and the State of Indiana have failed to identify specific effluent limitations for specific hazardous substances, pollutants, and contaminants and, instead, has identified only broad programmatic requirements. Thus, EPA and the State have failed to properly identify CWA requirements as ARARs.

Response: The commenter is incorrect. EPA refers the commenter to EPA's response to Comment 222 below. In addition, as explained by the State in its letter, as of the date that it identified its ARARs, there are no sample results reflecting the presence of a hazardous substance or pollutant or contaminant other than PCBs in the water emerging from the three Bennett's Dump springs. Diesel fuel contaminated with PCBs, however, was found in groundwater located at abandoned, back-filled quarry pits. Recent limited sampling of water emerging at the Bennett's Dump springs addition, does not show the presence of volatile organic chemicals (VOCs). Accordingly, although PCB-contaminated diesel fuel is present within the area of Bennett's Dump, no effluent limits can be identified for such hazardous substance or pollutant or contaminant, because so far no additional contaminants have been sampled for or have not been detected.

The State has identified its NPDES permit modification regulation (327 IAC 5-2-16(c)(2) and 5-2-16(d)(2)) as an ARAR and as a basis for being able to impose an effluent limit or other requirement for any such hazardous substance or pollutant or contaminant that is later identified (as well as a basis to identify newer methods for quantifying PCB concentrations). EPA agrees that while this may be the way the State handles discovery of additional contaminants (or newer quantification methodologies) at an NPDESpermitted facility, under Superfund EPA handles the discovery of additional contaminants, newer quantification methodologies, the inadequacy of existing treatment technologies, and other matters that may establish that a remedy is not protective, through amendments or other changes to its selected remedy using its remedy amendment process. The discovery of additional contaminants, newer quantification methodologies, or the inadequacy of existing treatment technologies may be raised to U.S. EPA at any time, and U.S. EPA's five year review process is one forum in which such matters may be formally raised and addressed. Thus, if additional hazardous substances or pollutants or contaminants are found to be in the water emerging at the Bennett's Dump Springs (or new PCB-quantitation methodologies are identified), and if these facts are raised to U.S. EPA, then it may be necessary to modify the selected ground water remedy to establish effluent limits or other additional requirements using EPA's processes for amending or otherwise altering a remedy selected in a record of decision.

Comment 222: Regarding PCBs, EPA and the State have not identified a legally enforceable effluent limitation that qualifies as an ARAR. Instead, EPA and the State rely on 327 IAC 5-2-11.1 as the vehicle to set an effluent limit of 0.3 parts per billion (ppb), because that is the limit of quantitiation (a level which can be reliably confirmed using existing measurement technology) using existing technology. The 0.3 ppb effluent limitation for PCBs does not qualify as an ARAR, because it has not been "promulgated" by the State as a regulatory standard.

**Response:** Indiana properly identified 327 IAC 5-2-11.1 as an ARAR and used that promulgated standard, requirement, criteria, or limitation to set an effluent limit of 0.3 ppb for PCBs. With respect to State ARARs, 42 U.S.C. § 9621(d)(2)(A)(ii) provides that

"any promulgated standard, requirements, criteria, or limitation under a State environmental . . . law that is more stringent than any Federal standard, requirement, criteria, or limitation . . . is legally applicable to the hazardous substance or pollutant or contaminant concerned or is relevant and appropriate under the circumstances of the release of such hazardous substance or pollutant or contaminant, the remedial action selected . . . shall require, at the completion of the remedial action a level or standard of control for such hazardous substance or pollutant or contaminant which at least attains such legally applicable or relevant and appropriate standard, requirement, criteria, or limitation."

This provision does not require that a State's "promulgated standard, requirements, criteria, or limitation under a State environmental . . . law" take the form of a specific, promulgated numeric effluent limit. Rather, it simply requires that the "standard, requirements, criteria, or limitation" identified as an ARAR be promulgated. Here, 327 IAC 5-2-11.1 is the relevant and appropriate standard, requirement, criteria, or limitation promulgated by Indiana. 327 IAC 5-2-11.1(f) in pertinent part provides:

- (f) When the WQBEL for any substance is less than the limit of quantitation normally achievable and determined by the commissioner to be appropriate for that substance in the effluent, the permit shall contain the following provisions:
- (1) The permittee shall be required to use an approved analytical methodology for the substance in the effluent to produce the LOD and LOQ achievable in the effluent. The analytical method, and the LOD and LOQ associated with this method, shall be specified in the permit in addition to the following requirements:
  - (A) The permit shall include conditions that state that effluent concentrations less than the limit of quantitation are in compliance with the effluent limitations.
  - (B) In addition, the permit shall require the permittee to implement one (1) or more of the following requirements:
    - (i) Develop a more sensitive analytical procedure.
    - (ii) Use an existing, more sensitive, analytical procedure that has not been approved by EPA.
    - (iii) Conduct studies to determine the bioaccumulative or bioconcentrative properties of the substance in aquatic species through caged-biota studies or fish tissue analyses of resident species.
    - (iv) Conduct effluent bioconcentration evaluations.
    - (v) Conduct whole effluent toxicity testing.
    - (vi) Other requirements, as appropriate, such as engineering assessments or sediment analyses.

For substances defined as BCCs, at a minimum, either item (iii) or (iv) shall be included in the permit.

- (2) If the measured effluent concentrations for a substance are above the WQBELs and above the LOD specified by the permit in any three (3) consecutive analyses or any five (5) out of nine (9) analyses, or if any of the additional analyses required under subdivision (1)(B) indicate that the substance is present in the effluent at concentrations exceeding the WQBELs, the permit shall contain provisions that require the discharger to:
  - (A) determine the source of this substance through evaluation of sampling techniques, analytical/laboratory procedures, and industrial processes and wastestreams; and
  - (B) increase the frequency of sampling and testing for the substance.
- (3) The permit shall contain provisions allowing the permit to be reopened, in accordance with section 16 of this rule, to include additional requirements or limitations if the information gathered under subdivisions (1) and (2) indicates that such additional requirements or limitations are necessary.

Here, the WQBEL for PCBs is 0.001 part per billion, which is below the limit of quantitation and limit of detection normally achievable and determined by the commissioner to be appropriate for PCBs. As a result, in accordance with the promulgated requirements of the NPDES program, the State set the effluent limit for PCBs at 0.3 ppb, which is the level at which concentrations of PCBs can be reliably quantified.

In identifying 327 IAC 5-2-11.1 as an ARAR, Indiana properly and timely identified a "promulgated standard, requirements, criteria, or limitation under a State environmental . . . law" and through application of that standard, requirements, criteria, or limitation derived the 0.3 ppb PCB effluent limitation.

EPA also notes that in its footnote 7 (Comment Letter at 7), CBS identifies a 3 pbb effluent limit taken from EPA Toxic Substances Control Act Spill Policy regulations (40 C.F.R. § 761.79(b)(1)(ii) as a higher (less stringent) limit than the "unpromulgated" limit of 0.3 pbb identified by the State. EPA concludes that the Stale limit of 0.3 pbb derived from application of Indiana's promulgated standard, requirements, criteria, or limitation at 327 IAC 5-2-11.1 is more stringent than the Federal requirement and, therefore, will be used.

Comment 223: PCB effluent limits that could be calculated pursuant to 327 IAC 5-2-11 and 327 IAC 5-2-11.2 also are not ARARs, because those levels are not verifiable using existing technology, and where numerical limits are infeasible, EPA can instead establish conditions to reduce pollutants to an acceptable level by, for example, using best management practices to control or abate the discharge of pollutants.

**Response:** The commenter appears to be suggesting that PCB effluent limits other than the 0.3 ppb effluent limit could be calculated pursuant to 327 IAC 5-2-11 and 327 IAC 5-2-11.2. Whether or not this is true is immaterial. Based upon consultations with the

State, EPA has determined that the proposed remedy will comply with ARARs under the State's NPDES program if, among other things, the proposed treatment plant meets or exceeds a discharge limit of 0.3 ppb. This discharge limit is verifiable using existing technology.

Comment 224: The 0.3 ppb PCB effluent limit, if it is an ARAR, should be waived under 42 U.S.C. § 9621(d)(4)(C) on the basis that it is technically impracticable to meet this limit from an engineering perspective.

**Response:** EPA declines to consider a technical impracticability waiver for 327 IAC 5-2-11.1 and the effluent limit of 0.3 ppb PCBs. Given the water flows and volumes at the Site, designing, constructing, and operating a water treatment plant that captures and removes PCBs to an effluent of 0.3 ppb is practicable from an engineering perspective. Indeed, the water treatment plant designed and constructed by EPA at the Illinois Central Spring Site consistently treats PCBs to this level.

**Comment 225:** The 0.3 ppb PCB effluent limit should also be waived under 42 U.S.C. § 9621(d)(4)(E). This provision "authorizes EPA to waive State ARARs when they are not consistently applied by the State." [Comment letter at 8.]

**Response:** There is no basis for providing this type of waiver here. The State timely identified 327 IAC 5-2-11.1 and the 0.3 ppb PCB effluent limit (which is based on current testing methodology reliability limitations). Indiana has demonstrated an intention to consistently apply 327 IAC 5-2-11.1, and EPA is unaware of examples of the State of Indiana being inconsistent in its application 327 IAC 5-2-11.1. Accordingly, EPA is unaware of a basis for waiving 327 IAC 5-2-11.1 and a 0.3 ppb PCB effluent under 42 U.S.C. § 9621(d)(4)(E).

Comment 226: CBS has stated that air emission provisions identified by IDEM are not ARARs. In the Fact Sheet, EPA notes that the State has identified as ARARs three requirements relating to major sources of hazardous air pollutants (HAPs). These requirements are plainly inapplicable and not relevant and appropriate. One requirement, 326 IAC 2-4.1, applies to major sources of HAPs. But, based on the description of the remedial alternatives in the Fact Sheet, there is no proposal to construct a major source of a HAP. The second requirement, 326 IAC 2-5.1-3(a)(1)(D), applies to sources of HAPs which have the potential to emit ten (10) tons or more of a HAP in a year, and the third requirement, 326 IAC 2-5.1-2(a)(1)(A), applies to sources of HAPs which also have the potential to emit five tons or more of particulate matter. Again, no such source is contemplated. Accordingly, these requirements should not have been designated as ARARs. These requirements are not only wrongly identified as ARARs, but by identifying them, EPA has created the false impression that air emissions from the proposed remedies are more extensive than contemplated.

**Response:** EPA agrees that ARARs indentified by the State for Alternative 5 for air emissions would not be applicable or relevant and appropriate. The identified ARARS above would be relevant and appropriate for Alternative 4.

Comment 227: EPA's Human Health Calculations are based on Errors and Unrealistic Assumptions. CBS's states that because available data do not demonstrate any significant risk to human health or ecological receptors at the site, no further action is required. For most exposure pathways, EPA's human health risk calculations do not result in cancer risk levels or non-cancer hazard quotient numbers of concern. In those limited instances in which EPA has calculated risk levels which cause concern, those calculations are inaccurate or based on erroneous exposure assumptions. When risks are recalculated "properly" (emphasis added), the results show no significant risk that justifies any further action, except perhaps precautionary monitoring.

Moreover, the conclusion reached by the Agency for Toxic Substances and Disease Registry (ATSDR) in its 1996 Public Health Assessment – that neither children nor adults are likely to engage in activities in Stout's Creek that are likely to lead to significant exposures to site-related contaminants – is still valid in 2006. The planned construction of North Park Development does not alter that conclusion. The ATSDR conclusion was based not only on the size of the nearby population, but also on the nature of the area of Stout's Creek near the site, which does not provide a desirable location for either fishing or swimming. Stout's Creek is not a favorable fishing area and its shallow depth near the Site makes it unsuitable for swimming. Moreover, the proximity of the proposed North Park Development makes it less likely that citizens would use Stout's Creek for these activities, since people generally prefer to swim and fish in secluded areas, not next to sizeable commercial developments.

The only exposure pathways which appear to give EPA concern are fish ingestion and dermal exposure (to surface water). But EPA's calculations of [the] cancer and non-cancer risks [associated with these exposure pathways] are not accurate, using the very principles of risk assessment which the Agency had established. As discussed in detail in Exhibit 1 (which is incorporated by reference), EPA has made numerous errors in its risk calculations, failing in many instances to follow the principles of risk assessment which the Agency itself had developed. In particular, EPA overestimates the overall fish consumption from Stout's Creek and has biased its fish ingestion calculations on the assumption that there will be a high level of ingestion of suckers. These assumptions are ill-founded. Stout's Creek is a small creek which can only support very limited fishing. Additionally, suckers are not a favored fish for consumption and the affected area of Stout's creek has a very small sucker population. Similarly, EPA's calculation of the risks due to dermal contact with water in Stout's Creek is based on the unsupportable assumption that people will swim two hours a day for sixty-eight days a year in a body of water that is not really suitable for recreational swimming.

EPA's errors are corrected and the risks are recalculated, as shown in the analysis in Exhibit 1. The resulting calculations show that cancer and non-cancer risks posed by the Bennett's Dump Superfund Site are well below the levels which justify action. Cancer risks associated with the ingestion of fish caught at Acuff Road (the point of greatest exposure) are more properly calculated at 3.4 in 1,000,000, rather than 2.9 in 100,000 – an order of magnitude lower. The non-cancer hazard quotient index for fish ingestion at

Acuff Road is more properly calculated as 0.2 for both adults and children, as opposed to the level of 1.7 for adults and 4.3 for children calculated by EPA. The cancer risks associated with dermal exposure to surface water are more properly calculated as ranging between 1.1 in 1,000,000 to 5.8 in 100,000,000, depending on location – substantially lower than the 3 in 100,000 calculated by EPA. With respect to dermal exposure to surface water, the non-cancer hazard index is more properly calculated at 0.064 at Hunter Road and at 0.0064 at the other two locations, instead of the 1.6 calculated by EPA for all three locations.

These recalculated risk levels do not justify remedial action, applying EPA's own standards for risk assessment and risk management. In U.S. EPA OSWER Directive 9355.0-30 "Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions" at 1 (April 22, 1991), EPA announced its policy that "[w]here the cumulative carcinogenic site risks to an individual based on reasonable maximum exposure for both current and future land use is less than 10(-4) [less than 1 in 10,000] and the non-carcinogenic hazard quotient is less than 1, action generally is not warranted unless there are adverse environmental impacts." Applying this standard to the Site, no remedial action is required, because, when properly calculated, all the cancer risks are well below 1 in 10,000 – indeed, well below 1 in 1,000,000 – and all the non-cancer hazard quotients are well below 1. Thus, no further action is justified by human health risks.

**Response:** EPA's responses to each of the comments above regarding particular elements of the HHRA are addressed in the responses to specific comments below. However, EPA's responses to several points raised by CBS are presented below.

EPA agrees that the combined fish tissue EPC should be calculated based on the relative availability of sunfish and sucker in Stout's Creek. Risks and hazards associated with potential ingestion of fish tissue have been modified based on the revised combined fish tissue EPCs. Also, EPA acknowledges that the surface water EPC used in the HHRA represents an initial screening value. Because receptors are unlikely to be exposed to the maximum concentration of PCBs detected in surface water downstream of the site, the surface water EPC has been recalculated consistent with EPA guidance as the 95 percent upper confidence limit of the mean (95 UCL) of the surface water analytical results measured at the downstream sampling locations (EPA 1992, 2002) (see Attachment 1). Further, EPA agrees that the combination of an assumed exposure frequency of 68 days/year and an exposure time of 2 hours/day is overly conservative. Therefore, EPA has revised the exposure time to 1 hour/day; EPA continues to believe that an exposure frequency of 68 days/year is consistent with a reasonable maximum exposure (RME) scenario.

Recalculated risks and hazards are presented in Attachment 2. Reach-specific total risks are greater than or equal to 1E-06 (1 in 1,000,000) in all reaches and equal 1E-05 (1 in 100,000) in BD-2. EPA has the mandate and authority to address and risks greater than 1E-06. Recalculated hazards are less than 1 in all reaches. Further, PCBs are present in whole sunfish and suckers at concentrations greater than the Ambient Water Quality Criteria (AWQC)-derived fish tissue level of 0.025 part per million (ppm) and in sunfish

and sucker fillets at concentrations greater than the PCB action level of 0.05 ppm used to trigger Indiana's fish consumption advisories. EPA's decision to require remedial action (including, but not limited to, the halting of direct discharges of contaminated groundwater into the creek) is consistent with the National Oil and Hazardous Substances Pollutant Contingency Plan (NCP) (EPA 1990) and EPA policy.

# Comment 228: Exhibit 1 - CBS Comments on the U.S. EPA's Human Health Risk Assessment for Bennett's Dump Site

The risk estimates that are provided in the HHRA still contain unnecessarily high levels of precautionary default assumptions and uncertainty. It appears that, in an effort to ensure that risks at the Site are not underestimated, a number of conservative default assumptions, which are not supported by available data or site characteristics, have been made and have resulted in substantially overestimated Site risks.

The key issues that have contributed to this overestimation include the following:

- Risks due to fish consumption are still overestimated due to the fact that fish ingestion rates do not reflect realistic use of the resource. Further, the exposure EPCs are based on a limited number of samples and include sizes and species of fish that are not likely to be consumed by sport-fish consumers.
- Risks due to surface water contact are overestimated due to the use of an EPC, which is intended to represent long-term exposure but is based in stead on the maximum concentration obtained over 5-years of sampling. In addition, this concentration was measured immediately adjacent to the landfill and cannot be considered representative of the downstream reaches of the creek, where dilution will substantially reduce the water concentrations. Finally, the HHRA uses unrealistically high ingestion and dermal contact rates, and an unreasonably high exposure frequency.
- Risks due to sediment contact are also inflated due to unreasonably high sediment ingestion rates, exposed dermal surface areas and frequency of contact.

In addition, the HHRA makes comparisons of fish tissue and water concentrations with Ambient Water Quality Criteria ("AWQC") and fish consumption advisories that have been established. Such comparisons are in appropriate give site-specific considerations, as discussed below, and thus should not be given substantial weight in risk management decisions.

**Response:** EPA will respond to each element of this general introduction in its responses below to each of the particular comments stated above on the HHRA.

#### Comment 229:

Fish Consumption – Development of EPCs

In developing its EPC for the fish consumption pathway, EPA has used an inconsistent approach. First, in cases where there are duplicate samples, EPA has sometimes averaged the duplicates before calculating the EPCs and, at other times, has used both concentrations as discrete samples in estimating the EPCs. In addition, they have combined individual fish sample concentrations data, without weighting the composite sample concentrations to reflect the number of fish associated with each. Finally, when attempting to derive an EPC for a combination of suckers and sunfish, EPA has fist averaged the average concentration for the sunfish fillets with the average for whole sunfish (converted to fillet concentrations) to derive an average sunfish concentration, and then has derived a final combined average concentration by averaging the new sunfish average concentration with the average concentration for sucker, assuming that both are consumed in equal proportions. This inappropriate averaging procedure results in a skewed EPC that does not reflect concentrations in fish tissues or the potential consumption habits of individuals who might consume fish from the creek.

CBS's consultant AMEC Earth and Environmental (AMEC) recalculated the species-specific EPCs for the fish consumption exposure pathway using a consistent approach. Duplicate samples have been averaged before they are incorporated as a single sample into the EPC calculation. In addition, when composite sampling data are combined with data for individual fish, the composite sample is given the appropriate weighting in the averaging process, based on the number of fish included in the composite sample. These revised EPCs are presented [table not included]).

CBS states that individuals are not likely to consume suckers. EPA has acknowledged those white suckers are "generally less desirable for consumption" than sunfish and that "white suckers are generally expected to make up a small portion of a typical angler's diet." EPA has stated however, that some anglers may be more opportunistic and thus may ingest a higher proportion of sucker. While this may be true if sucker were readily available in the creek, this is not the case. Opportunistic anglers catch and consume the fish that they can catch most easily. In the case of Stout's Creek, an opportunistic angler may catch and consume both sunfish and sucker but it is highly unlikely that that individual will consume only sucker, given its low availability in the creek. At best it is possible that individuals who consume both types of fish will consume them in a proportion that is reflective of their relative availability within the fishery itself.

AMEC recalculated the combination EPCs (for sucker and sunfish) for BD-2 and BD-3 using the following approach. First, each whole body sunfish tissue concentration has been adjusted, using EPA's fraction of 25 percent, to derive an estimated fillet concentration for each fish. Second, these estimated fillet concentrations (from the whole fish data) have been combined with the sunfish fillet concentrations that that were actually measured, and then averaged all of these sunfish data to derive an average concentration for sunfish fillets. The combination EPC for the consumption of suckers and sunfish has than been derive by calculating a weighted average using the average concentration for sunfish with the average concentration for sucker, along with weighting factors that reflect the relative availability of each species in each reach, as reported by

EPA. Thus, for BD-2, the combined EPC has been derived by assuming that 99.6 percent of the fish consumed are sunfish and 04 percent are sucker. For BD-3, the combined EPC has been derived by assuming that 97 percent of the fish consumed are sunfish and 3 percent are sucker, as shown in the following table:

	Concentration in Fish Tissue (µg/kg)			
	BD-2		BD-3	
Sample Type	Sunfish	Sucker	Sunfish	Sucker
Fillet	580		150	
Fillet	580		130	
Fillet	1400		130	
Fillet	150		550	
Whole (adj.)a	850	1350	150	550
Whole (adj.)a	400	2950	132.5	500
Whole (adj.)a	225	7000	135	650
Whole (adj.)a	400	1300	275	525
Whole (adj.)a	240	2100	215	550
Whole (adj.)a	550	6050	167.5	700
Whole (adj.)a	145.25	1135	155.25	317.5
Whole (adj.)a	145.25	1135	155.25	317.5
Whole (adj.)a	145.25	1135	155.25	317.5
Whole (adj.)a				382.5
Average	447	2684	192	481
Weighted				
Average	456		201	

a Whole (adj.) concentrations were derived by multiplying the whole fish concentrations provided in Tables B-1, B-2, and B-3 of the HHRA by 25%, for sunfish, and 50%, for sucker as discussed in Section 3.3.1 of the HHRA.

While EPA has also presented EPCs for dioxin toxicity equivalents (TEQ), these data are so limited that they provide little reliable insight into the potential risks associated with dioxin TEQ. For nearly all reaches and species, only one fish sample was analyzed for dioxin-like congeners so that the risk calculations are based on a single sample. These results cannot be considered representative or reliable without additional sampling to confirm their representation of site-specific tissue concentrations.

In addition, as discussed in previous comments to EPA on the HHRA for the Neal's Landfill Site (Viacom, 2004), there is considerable uncertainty associated with the use of dioxin TEQ to evaluate PCB congeners, including the uncertainties associated with the application of individual toxic equivalence factors, as well as the uncertainty associated with the selection of a cancer slope factor for dioxin. This uncertainty and the scientific validity of the approach are the subjects on considerable debate among members of the scientific community and, consequently, are a primary focus of the review of EPA's dioxin reassessment, which is currently underway by the National Academy of Sciences (NAS). Until such time as the approach has been deemed to be scientifically valid, the results of the use of this approach need to be considered with care. In addition, the HHRA has reported the result of an evaluation of the noncarcinogenic hazards posed by